

L1 1 S US 20080214678/PN

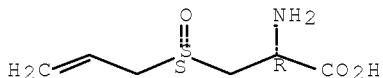
FILE 'REGISTRY' ENTERED AT 14:20:23 ON 08 DEC 2009

L2 1 S 539-86-6/RN  
SET NOTICE 1 DISPLAY  
SET NOTICE LOGIN DISPLAY

FILE 'REGISTRY' ENTERED AT 14:20:51 ON 08 DEC 2009

L3 1 S 556-27-4/RN \

L3 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2009 ACS on STN  
RN 556-27-4 REGISTRY  
CN L-Cysteine, S-2-propen-1-yl-, S-oxide, [S(S)]- (CA INDEX NAME)  
OTHER CA INDEX NAMES:  
CN Alanine, 3-(allylsulfinyl)- (7CI)  
CN Alanine, 3-(allylsulfinyl)-, (S)-L- (8CI)  
CN L-Alanine, 3-(2-propenylsulfinyl)-, (S)-  
CN L-Alanine, 3-[(S)-2-propenylsulfinyl]- (9CI)  
OTHER NAMES:  
CN (+)-L-Alliin  
CN Alliin  
CN S-Allyl-L-cysteine-(+)-sulfoxide  
FS STEREOSEARCH  
DR 23358-38-5  
MF C6 H11 N O3 S  
CI COM  
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BEILSTEIN\*, BIOSIS,  
BIOTECHNO,  
CA, CAPLUS, CASREACT, CBNB, CHEMCATS, CHEMLIST, CIN, CSCHEM,  
DDFU,  
DRUGU, EMBASE, IPA, MRCK\*, NAPRALERT, PROMT, SPECINFO, SYNTHLINE,  
TOXCENTER, USPAT2, USPATFULL  
(\*File contains numerically searchable property data)  
Other Sources: EINECS\*\*  
(\*\*Enter CHEMLIST File for up-to-date regulatory information)  
DT.CA CAplus document type: Conference; Journal; Patent  
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological  
study);  
OCCU (Occurrence); PREP (Preparation); PROC (Process); PRPH  
(Prophetic);  
RACT (Reactant or reagent); USES (Uses)  
RLD.P Roles for non-specific derivatives from patents: BIOL  
(Biological  
study); PREP (Preparation); USES (Uses)  
RL.NP Roles from non-patents: ANST (Analytical study); BIOL  
(Biological  
study); FORM (Formation, nonpreparative); OCCU (Occurrence); PREP  
(Preparation); PROC (Process); PRP (Properties); RACT (Reactant  
or  
reagent); USES (Uses); NORL (No role in record)  
RLD.NP Roles for non-specific derivatives from non-patents: ANST  
(Analytical  
study); BIOL (Biological study); PREP (Preparation); USES (Uses)  
Absolute stereochemistry.



SET NOTICE 1 DISPLAY  
SET NOTICE LOGIN DISPLAY

FILE 'REGISTRY' ENTERED AT 14:21:14 ON 08 DEC 2009  
L4 1 S 592-88-1/RN

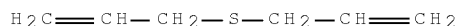
L4 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2009 ACS on STN  
RN 592-88-1 REGISTRY  
CN 1-Propene, 3,3'-thiobis- (CA INDEX NAME)  
OTHER CA INDEX NAMES:  
CN Allyl sulfide (6CI, 7CI, 8CI)  
OTHER NAMES:  
CN Allyl monosulfide  
CN Bis(2-propenyl) sulfide  
CN Di(2-propenyl) sulfide  
CN Diallyl monosulfide  
CN Diallyl sulfide  
CN Diallyl thioether  
CN NSC 20947  
CN Oil garlic  
CN Thioallyl ether  
DR 132879-26-6  
MF C6 H10 S  
CI COM  
LC STN Files: AGRICOLA, ANABSTR, BEILSTEIN\*, BIOSIS, BIOTECHNO, CA, CAPLUS, CASREACT, CBNB, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM\*, DRUGU, EMBASE, GMELIN\*, HSDB\*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK\*, MSDS-OHS, PROMT, RTECS\*, SPECINFO, TOXCENTER, USPAT2, USPATFULL, USPATOLD  
(\*File contains numerically searchable property data)  
Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*  
(\*\*Enter CHEMLIST File for up-to-date regulatory information)

DT.CA CAplus document type: Conference; Dissertation; Journal; Patent; Report  
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.P Roles for non-specific derivatives from patents: BIOL (Biological study); PREP (Preparation); PRP (Properties); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or

reagent); USES (Uses); NORL (No role in record)  
RLD.NP Roles for non-specific derivatives from non-patents: ANST  
(Analytical study); BIOL (Biological study); PREP (Preparation); PROC  
(Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)



SET NOTICE 1 DISPLAY  
SET NOTICE LOGIN DISPLAY

FILE 'REGISTRY' ENTERED AT 14:21:31 ON 08 DEC 2009  
L5 1 S 2050-87-5/RN

L5 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2009 ACS on STN  
RN 2050-87-5 REGISTRY  
CN Trisulfide, di-2-propen-1-yl (CA INDEX NAME)  
OTHER CA INDEX NAMES:  
CN Allyl trisulfide (6CI, 7CI, 8CI)  
CN Trisulfide, di-2-propenyl (9CI)  
OTHER NAMES:  
CN Allitridin  
CN Allitridum  
CN Di(2-propenyl) trisulfide  
CN Diallyl trisulfide  
CN NSC 651936  
MF C6 H10 S3  
LC STN Files: AGRICOLA, ANABSTR, BEILSTEIN\*, BIOSIS, BIOTECHNO, CA,  
CAPLUS,  
CASREACT, CHEMCATS, CHEMLIST, CSCHEM, DDFU, DRUGU, EMBASE,  
IFICDB,  
IFIPAT, IFIUDB, IPA, MEDLINE, MRCK\*, NAPRALERT, PROMT, PROUSDDR,  
RTECS\*,  
SPECINFO, TOXCENTER, USPAT2, USPATFULL  
(\*File contains numerically searchable property data)  
Other Sources: DSL\*\*, EINECS\*\*  
(\*\*Enter CHEMLIST File for up-to-date regulatory information)  
DT.CA CAPLUS document type: Conference; Journal; Patent  
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological  
study);  
FORM (Formation, nonpreparative); OCCU (Occurrence); PREP  
(Preparation);  
PROC (Process); PRP (Properties); USES (Uses)  
RLD.P Roles for non-specific derivatives from patents: BIOL  
(Biological  
study); PROC (Process); USES (Uses)  
RL.NP Roles from non-patents: ANST (Analytical study); BIOL  
(Biological  
study); FORM (Formation, nonpreparative); OCCU (Occurrence); PREP  
(Preparation); PROC (Process); PRP (Properties); RACT (Reactant  
or  
reagent); USES (Uses); NORL (No role in record)

H2C=CH-CH2-S-S-S-CH2-CH=CH2

SET NOTICE 1 DISPLAY  
SET NOTICE LOGIN DISPLAY

FILE 'REGISTRY' ENTERED AT 14:21:48 ON 08 DEC 2009  
L6 1 S 2179-57-9/RN

L6 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2009 ACS on STN  
RN 2179-57-9 REGISTRY

CN Disulfide, di-2-propenyl (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Allyl disulfide (6CI, 7CI, 8CI)

OTHER NAMES:

CN 4,5-Dithia-1,7-octadiene

CN Bis(2-propenyl) disulfide

CN Di(2-propenyl) disulfide

CN Diallyl disulfide

CN Diallyl disulphide

CN Dipropenyldisulfide

CN Garlicin

CN NSC 29228

MF C6 H10 S2

CI COM

LC STN Files: AGRICOLA, ANABSTR, BEILSTEIN\*, BIOSIS, BIOTECHNO, CA, CAPLUS,

CASREACT, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, CSNB, DDFU,

DETERM\*, DRUGU, EMBASE, GMELIN\*, HSDB\*, IFICDB, IFIPAT, IFIUDB, IPA,

MEDLINE, MSDS-OHS, NAPRALERT, PROMT, RTECS\*, SPECINFO, TOXCENTER, USPAT2, USPATFULL, USPATOLD

(\*File contains numerically searchable property data)

Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*

(\*\*Enter CHEMLIST File for up-to-date regulatory information)

DT.CA CAplus document type: Conference; Dissertation; Journal; Patent  
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study);

FORM (Formation, nonpreparative); OCCU (Occurrence); PREP (Preparation);

PROC (Process); PRP (Properties); RACT (Reactant or reagent);

USES

(Uses); NORL (No role in record)

RLD.P Roles for non-specific derivatives from patents: BIOL (Biological

study); NANO (Nanomaterial); PREP (Preparation); PROC (Process);

USES

(Uses)

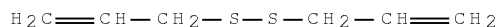
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological

study); FORM (Formation, nonpreparative); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant

or

reagent); USES (Uses); NORL (No role in record)

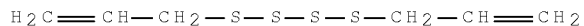
RLD.NP Roles for non-specific derivatives from non-patents: ANST  
(Analytical  
study); BIOL (Biological study); FORM (Formation,  
nonpreparative); OCCU  
(Occurrence)



SET NOTICE 1 DISPLAY  
SET NOTICE LOGIN DISPLAY

FILE 'REGISTRY' ENTERED AT 14:22:10 ON 08 DEC 2009  
L7 1 S 2444-49-7/RN

L7 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2009 ACS on STN  
RN 2444-49-7 REGISTRY  
CN Tetrasulfide, di-2-propen-1-yl (CA INDEX NAME)  
OTHER CA INDEX NAMES:  
CN Allyl tetrasulfide (7CI)  
CN Tetrasulfide, di-2-propenyl (9CI)  
CN Tetrasulfide, diallyl (8CI)  
OTHER NAMES:  
CN Diallyl tetrasulfide  
CN ICD 1585  
MF C6 H10 S4  
LC STN Files: AGRICOLA, ANABSTR, BEILSTEIN\*, BIOSIS, CA, CAPLUS,  
CASREACT,  
CHEMLIST, MEDLINE, NAPRALERT, RTECS\*, SPECINFO, TOXCENTER,  
USPATFULL  
(\*File contains numerically searchable property data)  
Other Sources: EINECS\*\*  
(\*\*Enter CHEMLIST File for up-to-date regulatory information)  
DT.CA CAPLUS document type: Journal; Patent  
RL.P Roles from patents: BIOL (Biological study); PREP (Preparation);  
PROC  
(Process); PRP (Properties); USES (Uses)  
RLD.P Roles for non-specific derivatives from patents: BIOL  
(Biological  
study); USES (Uses)  
RL.NP Roles from non-patents: ANST (Analytical study); BIOL  
(Biological  
study); FORM (Formation, nonpreparative); OCCU (Occurrence); PREP  
(Preparation); PROC (Process); PRP (Properties); RACT (Reactant  
or  
reagent); USES (Uses); NORL (No role in record)



SET NOTICE 1 DISPLAY  
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FILE 'REGISTRY' ENTERED AT 14:22:31 ON 08 DEC 2009  
L8 1 S 91216-95-4/RN  
SET NOTICE 1 DISPLAY  
SET NOTICE LOGIN DISPLAY

FILE 'HCAPLUS' ENTERED AT 14:27:51 ON 08 DEC 2009  
L9 67 S L4 AND L5 AND L6 AND L7  
L10 30 S L9 AND (PY<2003 OR AY<2003 OR PRY<2003)

L10 ANSWER 1 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN  
TI Process for producing of synthetic alliaceous ethereal oil  
AB The subject of the invention is a new process for the preparation of synthetic garlic essential oil. According to the invention, it is possible to create products that are analogous with the natural essential oil composition of garlic (*Allium sativum*) and whose organoleptic properties correspond to that of the natural material in an economical and environmental manner, even in industrial quantities. According to the invention, the synthetic garlic essential oil is prepared through the reaction of the mixture of allyl halogenide and Me iodide with a mol ratio of (93:7):(50:50) and alkali metal oligosulfide in an aqueous medium, at a temperature of 40-90° in such a way that the mixture of the allyl halogenide and Me iodide is made to react with a less than equivalent amount of the alkali metal oligosulfide, after which the remaining part of the allyl halogenide and Me iodide is made to react with an amount of di-alkali metal sulfide that the total amount of the inorg. sulfide added to the reaction mixture should not exceed the equivalent value relative to the total amount of the allyl halogenide and Me iodide.

ACCESSION NUMBER: 2007:928466 HCAPLUS Full-text  
DOCUMENT NUMBER: 147:257585  
TITLE: Process for producing of synthetic alliaceous ethereal oil  
INVENTOR(S): Lellei, Gabor; Szalay, Pal; Havalda, Gyula  
PATENT ASSIGNEE(S): Hung.  
SOURCE: Hung. Pat. Appl., 16pp.  
CODEN: HUXXCV  
DOCUMENT TYPE: Patent  
LANGUAGE: Hungarian  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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HU 9802619	A1	20000628	HU 1998-2619	
19981111 <--				
PRIORITY APPLN. INFO.:			HU 1998-2619	
19981111 <--				
OTHER SOURCE(S):	CASREACT	147:257585		
IC ICM C07C321-12				
CC 26-9 (Biomolecules and Their Synthetic Analogs)				
Section cross-reference(s):	11, 23, 62			
IT 592-88-1P, Diallyl sulfide	624-92-0P, Dimethyl disulfide			
2050-87-5P, Diallyl trisulfide	2179-57-9P, Diallyl disulfide			
2179-58-0P, Allyl methyl disulfide	2444-49-7P,			

Diallyl tetrasulfide 3658-80-8P, Dimethyl trisulfide 5756-24-1P,  
 Dimethyl tetrasulfide 10152-76-8P, Allyl methyl sulfide 34135-85-8P,  
 Allyl methyl trisulfide 118686-45-6P, Diallyl pentasulfide  
 RL: IMF (Industrial manufacture); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (process for producing of synthetic alliaceous ethereal oil)

L10 ANSWER 2 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN

TI Manufacture of synthetic garlic essential oil

AB The synthetic garlic essential oil is produced by the reaction of allyl halide with Me iodide, at (93:7)-(50:50) mol. ratio, in an aqueous medium containing an alkali metal oligosulfide, at 40-90°, in such a way that the mixture of the allyl halide and Me iodide is made to react with a less than equivalent amount of the alkali metal oligosulfide, and then the remaining amount of the allyl halide and Me iodide is reacted with an amount of alkali metal sulfide so that the total amount of inorg. sulfides added to the reaction mixture do not exceed the equivalent value relative to the total amount of the allyl halide and Me iodide. Composition of the synthetic garlic oil is given.

ACCESSION NUMBER: 2007:203143 HCAPLUS Full-text

DOCUMENT NUMBER: 147:196730

TITLE: Manufacture of synthetic garlic essential oil

INVENTOR(S): Szalay, Pal; Lellei, Gabor; Szalay, Karoly; Havalda,

Gyula

PATENT ASSIGNEE(S): Kompozicio Ipari, Mezoegazdasagi Es Kereskedelmi Kft.,

Hung.

SOURCE: Hung. Pat. Appl., 16pp.

CODEN: HUXXCXV

DOCUMENT TYPE: Patent

LANGUAGE: Hungarian

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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HU 9700287	A1	19981130	HU 1997-287	
19970131 <--				
PRIORITY APPLN. INFO.:			HU 1997-287	
19970131 <--				
IC ICM A23L001-226				
CC 62-2 (Essential Oils and Cosmetics)				
Section cross-reference(s): 17				
IT 110-81-6, Diethyl disulfide 592-88-1, Diallyl monosulfide 2050-87-5, Diallyl trisulfide 2179-57-9, Diallyl disulfide 2179-58-0, Allyl methyl disulfide 2444-49-7, Diallyl tetrasulfide 3658-80-8, Dimethyl trisulfide 5756-24-1, Dimethyl tetrasulfide 10152-76-8, Allyl methyl sulfide 34135-85-8,				
Allyl methyl trisulfide 118686-45-6, Diallyl pentasulfide				
RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)				
(component of synthetic garlic essential oil)				

L10 ANSWER 4 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN

TI Inhibitory effects of aqueous garlic extract, garlic oil and four diallyl sulphides against four enteric pathogens

AB The inhibitory effects of aqueous garlic extract, garlic oil and four diallyl sulfides naturally occurring in this oil against *Escherichia coli*, *Enterobacter cloacae*, *Enterococcus faecalis*, and *Citrobacter freundii* (total 291 clin. isolates) were studied. The MIC values of four diallyl sulfides against the four enteric pathogens followed the order diallyl monosulfide > diallyl disulfide > diallyl trisulfide > diallyl tetrasulfide ( $p < 0.05$ ). Most interactions of 4 antibiotics (meropenem, ceftazidime, imipenem, and gentamicin) with diallyl polysulfide, determined as FIC index, showed synergistic or additive effects. Garlic oil at 2X MIC reduced original inoculum to  $\leq 3 \log_{10}/\text{mL}$  within 8 h; and 4X MIC reduced original inoculum to  $< 2 \log_{10}/\text{mL}$  in all test enteric pathogens within 6 h. The intake of aqueous garlic extract in humans provided the antibacterial activity in plasma, determined by inhibitory zone. These results suggested that aqueous garlic extract, garlic oil, and diallyl polysulfide may have potential for the prevention or control of infections caused by enteric pathogens.

ACCESSION NUMBER: 2002:703941 HCAPLUS Full-text

DOCUMENT NUMBER: 137:275616

TITLE: Inhibitory effects of aqueous garlic extract, garlic oil and four diallyl sulphides against four enteric pathogens

AUTHOR(S): Yin, Mei-Chin; Chang, Hui-Ching; Tsao, Shyh-Ming

CORPORATE SOURCE: Department of Nutritional Science, Chungshan Medical University, Taichung City, Taiwan

SOURCE: Yaowu Shipin Fenxi (2002), 10(2), 120-126  
CODEN: YSFEEP; ISSN: 1021-9498

PUBLISHER: National Laboratories of Food and Drugs, Dep. of Health, Executive Yuan

DOCUMENT TYPE: Journal

LANGUAGE: English

CC 10-5 (Microbial, Algal, and Fungal Biochemistry)  
Section cross-reference(s): 63

IT 592-88-1, Diallyl monosulfide 2050-87-5, Diallyl trisulfide 2179-57-9, Diallyl disulfide 2444-49-7, Diallyl tetrasulfide

RL: BSU (Biological study, unclassified); THU (Therapeutic use);

BIOL (Biological study); USES (Uses)  
(inhibitory effects of aqueous garlic extract, garlic oil, and diallyl sulfides against enteric pathogens)

OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD  
(5 CITINGS)

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE



FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

L10 ANSWER 5 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN

TI Analysis of the headspace aroma compounds of the seeds of the  
Cameroonian

"garlic plant" *Hua gabonii* using SPME/GC/FID, SPME/GC/MS and  
olfactometry

AB The headspace aroma compds. of the seeds of the "garlic plant" *Hua gabonii* (Huaceae) from Cameroon were analyzed by solid-phase-micro-extraction/gas chromatog./ flame ionization detector (SPME/GC/FID), SPME/GC/mass spectrometry (MS), and olfactoric evaluations. Surprisingly the typical garlic-like aroma of the headspace (SPME) sample is not only the result of well-known disulfides of *Allium* species, but - in plants with garlic aroma - of hitherto rather rarely identified Me methylthiomethyl disulfide (2,4,5-trithiahexane) and di-(methylthiomethyl) disulfide (2,4,5,7-tetrathiaoctane) in concns. of 23.3% and 21.4% resp. (calculated as percentage peak area of SPME/GC/FID anal. using a non-polar column). As further main compds. (concns. higher than 1.0%) of this SPME-headspace sample of *H. gabonii* seeds the monoterpenes p-cymene (1.1%),  $\beta$ -pinene (1.1%), pinocarveol (1.2%), myrtenol (1.3%), 1,8-cineole (1.5%), myrtenal (1.7%),  $\alpha$ -terpineol (2.1%),  $\alpha$ -pinene (3.6%),  $\alpha$ -terpinolene (4.9%), terpinen-4-ol (8.1%) and the sesquiterpenes  $\beta$ -caryophyllene (2.6%) and  $\alpha$ -copaene (4.9%) as well as the sulfidic compds. diallyl trisulfide (1.5%), di-Pr trisulfide (1.7%) and Me Pr tetrasulfide (2.2%), were identified. The characteristic disulfide components of common garlic, like diallyl disulfide, were found only as minor compds. A correlation of identified volatiles of the *H. gaboni* seeds responsible for the characteristic garlic aroma with fresh terpenic notes is addnl. given.

ACCESSION NUMBER: 2002:267690 HCAPLUS Full-text

DOCUMENT NUMBER: 137:5320

TITLE: Analysis of the headspace aroma compounds of  
the seeds  
of the Cameroonian "garlic plant" *Hua gabonii*  
using

SPME/GC/FID, SPME/GC/MS and olfactometry

AUTHOR(S): Jirovetz, Leopold; Buchbauer, Gerhard;  
Ngassoum,

Martin Benoit; Geissler, Margit

CORPORATE SOURCE: Institute of Pharmaceutical Chemistry,  
University of

Vienna, Vienna, A-1090, Austria

SOURCE: European Food Research and Technology (2002  
, 214(3), 212-215

CODEN: EFRTFO; ISSN: 1438-2377

PUBLISHER: Springer-Verlag

DOCUMENT TYPE: Journal

LANGUAGE: English

CC 17-6 (Food and Feed Chemistry)

IT 78-70-6, Linalool 80-56-8,  $\alpha$ -Pinene 87-44-5,  
 $\beta$ -Caryophyllene 89-83-8, Thymol 93-15-2, Methyl eugenol  
97-53-0, Eugenol 98-55-5,  $\alpha$ -Terpineol 99-83-2,

$\alpha$ -Phellandrene 99-85-4,  $\gamma$ -Terpinene 99-86-5,  
 $\alpha$ -Terpinene 99-87-6, p-Cymene 106-22-9,  $\beta$ -Citronellol  
110-81-6, Ethyl disulfide 123-35-3, Myrcene 127-91-3,  $\beta$ -Pinene  
138-86-3, Limonene 141-78-6, Ethyl acetate, biological studies  
470-82-6, 1,8-Cineole 489-86-1, Guaiol 507-70-0, Borneol 515-  
00-4,  
Myrtenol 515-13-9,  $\beta$ -Elemene 562-74-3, Terpinen-4-ol 564-94-  
3,  
Myrtenal 586-62-9 592-88-1, Diallyl sulfide 624-92-0,  
Dimethyl disulfide 629-19-6, Dipropyl disulfide 639-99-6,  
Elemol  
1139-30-6, Caryophyllene epoxide 1632-73-1, Fenchol 2050-87-5  
, Diallyl trisulfide 2179-57-9, Diallyl disulfide 2179-58-0,  
Allyl methyl disulfide 2444-49-7, Diallyl tetrasulfide  
3387-41-5, Sabinene 3658-80-8, Dimethyl trisulfide 3779-61-1,  
trans- $\beta$ -Ocimene 3856-25-5,  $\alpha$ -Copaene 4437-20-1, Difurfuryl  
disulfide 4798-44-1, 1-Hexen-3-ol 5947-36-4, Pinocarveol  
6028-61-1,  
Dipropyl trisulfide 6750-60-3, Spathulenol 6753-98-6,  $\alpha$ -  
Humulene  
7212-44-4, Nerolidol 8007-35-0, Terpinyl acetate 18794-84-8,  
trans- $\beta$ -Farnesene 23986-74-5, Germacrene D 33368-82-0  
34135-85-8, Allyl methyl trisulfide 39029-41-9,  $\gamma$ -Cadinene  
42474-44-2, Methyl methylthiomethyl disulfide 85544-38-3 87148-  
08-1,  
Methyl propyl tetrasulfide 88496-84-8  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(headspace aroma compds. of *Hua gabonii* seeds detected by solid-  
phase  
microextn., GC, MS, and olfactometry)  
OS.CITING REF COUNT: 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS  
RECORD  
(8 CITINGS)  
REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE  
FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L10 ANSWER 8 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN  
TI In-vitro antimicrobial activity of four diallyl sulphides occurring  
naturally in garlic and Chinese leek oils  
AB The in-vitro antimicrobial activity of garlic oil, Chinese leek  
oil and four diallyl sulfides occurring naturally in these oils  
against *Staphylococcus aureus*, methicillin-resistant *S. aureus*  
(MRSA), three *Candida* spp. and three *Aspergillus* spp. (total of  
276 clin. isolates) was studied. The magnitude of activity of the  
four diallyl sulfides followed the order diallyl tetrasulfide >  
diallyl trisulfide > diallyl disulfide > diallyl monosulfide.  
These results suggest that disulfide bonds are an important factor  
in determining the antimicrobial capabilities of these sulfides.  
The concentration of four diallyl sulfides in garlic and Chinese  
leek oils was in the range 41.7-52.7% of total sulfides. Garlic  
oil, with a higher concentration of four diallyl sulfides, showed  
greater antimicrobial activity than Chinese leek oil. Diallyl  
disulfide, diallyl trisulfide, diallyl tetrasulfide and the oils

rich in these sulfides may have a role in the prevention or treatment of infections.

ACCESSION NUMBER: 2001:527327 HCAPLUS Full-text  
DOCUMENT NUMBER: 135:269923  
TITLE: In-vitro antimicrobial activity of four diallyl sulphides occurring naturally in garlic and Chinese leek oils  
AUTHOR(S): Tsao, Shyh-Ming; Yin, Mei-Chin  
CORPORATE SOURCE: Department of Internal Medicine, Chungshan Hospital,  
Taichung, Taiwan  
SOURCE: Journal of Medical Microbiology (2001), 50(7), 646-649  
CODEN: JMMIAV; ISSN: 0022-2615  
PUBLISHER: Lippincott Williams & Wilkins  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
CC 10-5 (Microbial, Algal, and Fungal Biochemistry)  
Section cross-reference(s): 11, 17, 62  
IT 592-88-1, Diallyl monosulfide 2050-87-5, Diallyl trisulfide 2179-57-9, Diallyl disulfide 2444-49-7, Diallyl tetrasulfide  
RL: BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)  
(in-vitro antimicrobial activity of four diallyl sulfides occurring naturally in garlic and Chinese leek oils)  
OS.CITING REF COUNT: 36 THERE ARE 36 CAPLUS RECORDS THAT CITE THIS RECORD (36 CITINGS)  
REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD.  
FORMAT. ALL CITATIONS AVAILABLE IN THE RE

L10 ANSWER 9 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN

TI Quality of essential oils and processed materials of selected spices and herbs

AB Chemical composition of the essential oils of selected Indian spices and herbs are reported for the first time using GC-MS anal. with a view for their utilization in food and flavor industry. Chemical components of essential oil of minor spices Nagkesar, Triphal and Longpepper of Indian origin, leafy spices (Mint, Rosemary, Marjoram and Garlic creeper) grown in India, garlic of different regions of India, unconventional fruits parts of cinnamon and Nigerian cardamom are presented. Effect of different methods of drying on the flavor quality of selected herbs is also discussed. Ambient grinding conditions of black pepper with respect to its chemical composition and flavor quality is also described. This is a over view of recent developments on the above mentioned aspects at Central Food Technol. Research Institute, made during the last five years.

ACCESSION NUMBER: 2001:398711 HCAPLUS Full-text

DOCUMENT NUMBER: 136:58479  
TITLE: Quality of essential oils and processed  
materials of selected spices and herbs  
AUTHOR(S): Rao, Lingamallu Jagan Mohan  
CORPORATE SOURCE: Plantation Products, Spices and Flavour  
Technology  
Department, Central Food Technological Research  
Institute, Mysore, 570013, India  
SOURCE: Journal of Medicinal and Aromatic Plant  
Sciences (2000), 22(1B), 808-816  
CODEN: JMASF6  
PUBLISHER: Central Institute of Medicinal and Aromatic  
Plants  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
CC 62-2 (Essential Oils and Cosmetics)  
Section cross-reference(s): 11, 17

L10 ANSWER 11 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN  
TI Etheric oil from garlic (*Allium sativum* L.) obtained by CO<sub>2</sub>-SFE:  
Comparison with steam distillation  
AB The main focus of the present work was to obtain qual. and quant.  
information on etheric oil produced by the steam distillation of  
garlic homogenate, by steam distillation after previously applied  
microwave (MW) treatment of garlic cloves, by steam distillation  
under reduced pressure, and by supercrit. fluid extraction with  
carbon dioxide.  
ACCESSION NUMBER: 2001:154275 HCAPLUS Full-text  
DOCUMENT NUMBER: 135:97188  
TITLE: Etheric oil from garlic (*Allium sativum* L.)  
obtained by CO<sub>2</sub>-SFE: Comparison with steam distillation  
AUTHOR(S): Skala, Dejan; Kuzic, Radmila; Zizovilc, Irena;  
Nikolic, Vesna; Jovanovic, Dusan  
CORPORATE SOURCE: Faculty of Technology and Metallurgy, Belgrade,  
YU-11001, Yugoslavia  
SOURCE: Hemijska Industrija (2000), 54(12), 539-545  
CODEN: HMIDA8; ISSN: 0367-598X  
PUBLISHER: Savez Hemicara i Tehnologa Jugoslavije  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
CC 62-2 (Essential Oils and Cosmetics)  
Section cross-reference(s): 17  
IT 75-18-3, Dimethyl sulfide 107-18-6, 2-Propen-1-ol, biological  
studies 505-10-2, 3-Methyl thiopropanol 592-88-1, Diallyl sulfide  
2050-87-5, Diallyl trisulfide 2179-57-9, Diallyl  
disulfide 2179-58-0, Methyl allyl disulfide 2179-59-1, Propyl  
allyl disulfide 2444-49-7, Diallyl tetra sulfide 3658-80-8,  
Dimethyl trisulfide 7439-89-6, Iron, biological studies 7439-  
95-4, Magnesium, biological studies 7439-96-5, Manganese, biological  
studies 7440-09-7, Potassium, biological studies 7440-23-5, Sodium,

biological  
studies 7440-48-4, Cobalt, biological studies 7440-50-8,  
Copper,  
biological studies 7440-66-6, Zinc, biological studies 7440-70-  
2,  
Calcium, biological studies 7553-56-2, Iodine, biological studies  
7723-14-0, Phosphorus, biological studies 7782-49-2, Selenium,  
biological studies 7782-50-5, Chlorine, biological studies  
9004-34-6,  
Cellulose, biological studies 10152-76-8, Methyl allyl sulfide  
10152-77-9, Methyl 1-propenyl sulfide 23838-18-8 23838-19-9  
33922-73-5 34135-85-8, Methyl allyl trisulfide 62488-53-3  
112775-21-0 122156-02-9 122156-03-0 132604-57-0  
RL: BOC (Biological occurrence); BSU (Biological study,  
unclassified);  
BIOL (Biological study); OCCU (Occurrence)  
(etheric oil from garlic (*Allium sativum*) obtained by CO2-SFE  
comparison with steam distillation)  
OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS  
RECORD  
(3 CITINGS)  
REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE  
FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L10 ANSWER 12 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN

TI Activities of garlic oil, garlic powder, and their diallyl  
constituents

against *Helicobacter pylori*

AB Chronic *Helicobacter pylori* disease is reduced with *Allium*  
vegetable intake. This study was designed to assess the in vivo  
anti-*H. pylori* potential of a variety of garlic substances. The  
garlic materials all showed substantial but widely differing anti-  
*H. pylori* effects against all strains and isolates tested. The  
MICs (range, 8 to 32 µg/mL) and min. bactericidal concns. (MBCs)  
(range, 16 to 32 µg/mL) of undiluted garlic oil (GO) were smaller  
than those of garlic powder (GP) (MIC range, 250 to 500 µg/mL; MBC  
range, 250 to 500 µg/mL) but greater than the MIC of allicin (4.0  
µg/mL) present in GP. Allicin (MIC, 6 µg/mL; MBC, 6 µg/mL) was  
more potent than diallyl disulfide (MIC range, 100 to 200 µg/mL;  
MBC range, 100 to 200 µg/mL), its corresponding sulfide, but of a  
strength similar to that of diallyl tetrasulfide (MIC range, 3 to  
6 µg/mL; MBC range, 3 to 6 µg/mL). Antimicrobial activity of the  
diallyl sulfides increased with the number of sulfur atoms. Time  
course viability studies and microscopy showed dose-dependent  
anti-*H. pylori* effects with undiluted GO, GP, allicin, and diallyl  
trisulfide after a lag phase of ca. 1 to 2 h. Substantial in  
vitro anti-*H. pylori* effects of pure GO and GP and their diallyl  
sulfur components exist, suggesting their potential for in vivo  
clin. use against *H. pylori* infections.

ACCESSION NUMBER: 2000:309719 HCAPLUS Full-text

DOCUMENT NUMBER: 133:71319

TITLE: Activities of garlic oil, garlic powder, and  
their

diallyl constituents against *Helicobacter pylori*

AUTHOR(S): O'Gara, E. A.; Hill, D. J.; Maslin, D. J.

CORPORATE SOURCE: School of Health Sciences, University of Wolverhampton, Wolverhampton, WV1 1DJ, UK

SOURCE: Applied and Environmental Microbiology (2000), 66(5), 2269-2273  
CODEN: AEMIDF; ISSN: 0099-2240

PUBLISHER: American Society for Microbiology

DOCUMENT TYPE: Journal

LANGUAGE: English

CC 10-5 (Microbial, Algal, and Fungal Biochemistry)

IT 539-86-6, Allicin 592-88-1, Diallyl monosulfide 2050-87-5, Diallyl trisulfide 2179-57-9, Diallyl disulfide 2179-58-0, Methyl allyl disulfide 2444-49-7, Diallyl tetrasulfide 3658-80-8, Dimethyl trisulfide 5756-24-1, Dimethyl tetrasulfide 7330-31-6, Dimethyl pentasulfide 34135-85-8, Methyl allyl trisulfide 90195-83-8, Methyl allyl tetrasulfide 118023-99-7, Methyl allyl pentasulfide 118686-45-6, Diallyl pentasulfide 137415-12-4, Methyl allyl hexasulfide 137443-18-6, Diallyl hexasulfide

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses) (activities of garlic oil, garlic powder, and their diallyl constituents against *Helicobacter pylori*)

OS.CITING REF COUNT: 80 THERE ARE 80 CAPLUS RECORDS THAT CITE THIS RECORD (80 CITINGS)

REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE REFORMAT

L10 ANSWER 13 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN

TI Garlic oil and/or its components for withering prevention and activation of plants

AB Garlic oil and/or allyl sulfides as components of garlic oil are useful for withering prevention and activation of plants. An emulsion containing 10 ppm garlic oil totally controlled larvae of *Bursaphelenchus xylophilus* to prevent pine wilt disease.

ACCESSION NUMBER: 1999:518658 HCAPLUS Full-text

DOCUMENT NUMBER: 131:154761

TITLE: Garlic oil and/or its components for withering prevention and activation of plants

INVENTOR(S): Kominato, Yutaka; Takeyama, Yoshimori; Nishimi, Tomoyuki

PATENT ASSIGNEE(S): Riken Health K. K., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.  
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 11222410	A	19990817	JP 1998-38038	
19980203 <--				
PRIORITY APPLN. INFO.:			JP 1998-38038	
19980203 <--				
IC ICM A01N065-00				
ICS A01N041-12				
CC 5-3 (Agrochemical Bioregulators)				
IT 592-88-1, Diallyl monosulfide		2050-87-5, Diallyl		
trisulfide	2179-57-9, Diallyl disulfide	2444-49-7,		
Diallyl tetrasulfide				
RL: AGR (Agricultural use); BAC (Biological activity or effector,				
except				
adverse); BSU (Biological study, unclassified); BUU (Biological				
use,				
unclassified); BIOL (Biological study); USES (Uses)				
(garlic oil and/or allyl sulfides for withering prevention and				
activation of plants)				
OS.CITING REF COUNT: 1		THERE ARE 1 CAPLUS RECORDS THAT CITE THIS		
RECORD				
		(1 CITINGS)		

L10 ANSWER 14 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN

TI Volatile flavor components of Allium sativum essential oil from Pakistan

AB Ten aroma constituents of fresh Allium sativum (garlic) oil were determined by GC/MS, among 18 major peaks separated The major S compds. of the oil were diallyl sulfide, di(2-propenyl)trisulfide, Me 2-propenyl sulfide and Me 2-propenyl disulfide.

ACCESSION NUMBER: 1999:374561 HCAPLUS Full-text

DOCUMENT NUMBER: 131:169518

TITLE: Volatile flavor components of Allium sativum essential oil from Pakistan

AUTHOR(S): Riaz, M.; Iqbal, M. Javaid; Chaudhry, F. M.

CORPORATE SOURCE: PCSIR Laboratories Complex, Lahore, 54600, Pak.

SOURCE: Pakistan Journal of Scientific and Industrial Research

(1998), 41(5), 240-241

CODEN: PSIRAA; ISSN: 0030-9885

PUBLISHER: Pakistan Council of Scientific and Industrial Research

DOCUMENT TYPE: Journal

LANGUAGE: English

CC 17-6 (Food and Feed Chemistry)

Section cross-reference(s): 11

IT 291-21-4, Trimethylene trisulfide 592-88-1, Diallyl sulfide

624-92-0, Dimethyl disulfide 2050-87-5, Di(2-propenyl) trisulfide

2179-57-9, Diallyl disulfide 2179-58-0, Methyl (2-propenyl) disulfide

2444-49-7, Diallyl tetrasulfide

3658-80-8, Dimethyl trisulfide 10152-76-8, Allylmethyl sulfide

34135-85-8, Methyl (2-propenyl) trisulfide

RL: BOC (Biological occurrence); BSU (Biological study,  
unclassified);  
BIOL (Biological study); OCCU (Occurrence)  
(volatile flavor components of Allium sativum essential oil from  
Pakistan)

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE  
FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L10 ANSWER 16 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN

TI Analysis of thermal degradation products of allyl isothiocyanate  
and

phenethyl isothiocyanate

AB Allyl isothiocyanate (AITC) or phenethyl isothiocyanate (PEITC) in  
an aqueous solution were heated and refluxed at 100°C for 1 h.  
The reaction mixts. were simultaneously distilled and extracted  
into methylene chloride using a Likens-Nickerson (L-N) apparatus  
and then analyzed using gas chromatog. (GC) and gas chromatog.-  
mass spectrometry (GC-MS). The mixts. in the aqueous phase were  
analyzed by high performance liquid chromatog. (HPLC) and liquid  
chromatog.-mass spectrometry (LC-MS) equipped with an atmospheric  
pressure chemical ionization (APCI) interface. Nine thermal  
degradation volatile products including diallyl sulfide, diallyl  
disulfide, diallyl trisulfide, diallyl tetrasulfide, allyl  
thiocyanate, 3H-1,2-dithiolene, 2-vinyl-4H-1,3-dithiin, 4H-1,2,3-  
trithiin, and 5-methyl-1,2,3,4-tetrathiane were identified from  
AITC, while no volatile degradation products from PEITC were  
found. N,N'-diallylthiourea and N,N'-diphenethylthiourea, which  
were the major degradation products in the aqueous phase from the  
thermal reaction of AITC and PEITC, resp., were identified by LC-  
MS (APCI+), direct probe EI-MS and H1-NMR. A possible mechanism  
for the formation of these products is proposed.

ACCESSION NUMBER: 1998:557414 HCAPLUS Full-text

DOCUMENT NUMBER: 129:274937

ORIGINAL REFERENCE NO.: 129:56057a,56060a

TITLE: Analysis of thermal degradation products of  
allyl

isothiocyanate and phenethyl isothiocyanate

AUTHOR(S): Chen, Chung-Wen; Rosen, Robert T.; Ho, Chi-Tang

CORPORATE SOURCE: Department of Food Science and Center for

Advanced

Food Technology, Cook College, Rutgers, The

State

University of New Jersey, New Brunswick, NJ,  
08901-8520, USA

SOURCE: ACS Symposium Series (1998), 705(Flavor  
Analysis), 152-166

CODEN: ACSMC8; ISSN: 0097-6156

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

CC 17-2 (Food and Feed Chemistry)

Section cross-reference(s): 28

IT 288-26-6, 3H-1,2-Dithiole 290-30-2, 4H-1,2,3-Trithiin 592-88-1  
, Diallyl sulfide 764-49-8, Allyl thiocyanate 2050-87-5,  
Diallyl trisulfide 2179-57-9, Diallyl disulfide



2444-49-7, Diallyl tetrasulfide 80028-57-5,  
2-Vinyl-4H-1,3-dithiin 116664-30-3  
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)  
(thermal degradation products of allyl isothiocyanate and

phenethyl

isothiocyanate)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS  
RECORD

(1 CITINGS)

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE  
FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L10 ANSWER 17 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN

TI Thermal Degradation of Allyl Isothiocyanate in Aqueous Solution

AB Allyl isothiocyanate in an aqueous solution was heated and  
refluxed at 100 °C for 1 h. The reaction mixts. were then  
extracted with methylene chloride and analyzed using gas  
chromatog. (GC) and gas chromatog.-mass spectrometry (GC-MS). The  
mixts. in aqueous phase were analyzed by high-performance liquid  
chromatog. (HPLC) and liquid chromatog.-mass spectrometry (LC-MS)  
equipped with an atmospheric-pressure chemical ionization (APCI)  
interface. The compds. identified in the methylene chloride exts.  
included diallyl sulfide, diallyl disulfide, diallyl trisulfide,  
diallyl tetrasulfide, allyl thiocyanate, 3H-1,2-dithiolene, 2-  
vinyl-4H-1,3-dithiin, 4H-1,2,3-trithiin, and 5-methyl-1,2,3,4-  
tetrathiane. N,N'-Diallylthiourea, which was the major  
degradation product in the aqueous phase from the thermal reaction  
of allyl isothiocyanate, was identified by using LC-MS (APCI+),  
direct-probe EI-MS, and 1H-NMR. The possible mechanism for the  
formation of these products was proposed.

ACCESSION NUMBER: 1998:31719 HCAPLUS Full-text

DOCUMENT NUMBER: 128:33893

ORIGINAL REFERENCE NO.: 128:6673a,6676a

TITLE: Thermal Degradation of Allyl Isothiocyanate in  
Aqueous

Solution

AUTHOR(S): Chen, Chung-Wen; Ho, Chi-Tang

CORPORATE SOURCE: Department of Food Science Cook College, New  
Jersey

Agricultural Experiment Station Rutgers The  
State

University of New Jersey, New Brunswick, NJ,  
08901-8520, USA

SOURCE: Journal of Agricultural and Food Chemistry ( 1998), 46(1), 220-223

CODEN: JAFCAU; ISSN: 0021-8561

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

CC 17-2 (Food and Feed Chemistry)

IT 288-26-6, 1,2-Dithiolene 290-30-2, 4H-1,2,3-Trithiin 592-88-1  
, Diallyl sulfide 764-49-8, Allyl thiocyanate 2050-87-5,  
Diallyl trisulfide 2179-57-9, Diallyl disulfide  
2444-49-7, Diallyl tetrasulfide 80028-57-5,  
2-Vinyl-4H-1,3-dithiin 116664-30-3

RL: FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); FORM (Formation, nonpreparative); PROC (Process) (thermal degradation of allyl isothiocyanate in aqueous solution)  
OS.CITING REF COUNT: 16 THERE ARE 16 CAPLUS RECORDS THAT CITE THIS  
RECORD (16 CITINGS)  
REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L10 ANSWER 18 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN  
TI Sulfur-Containing Volatiles Arising by Thermal Degradation of Alliin and Deoxyalliin

AB Alliin (S-allyl-L-cysteine sulfoxide) and its biochem. precursor deoxyalliin (S-allyl-L-cysteine) were heated in a closed model system at different temps. (from 80 to 200 °C) in the presence of variable amts. of water (0-98%) for 1-60 min. The arising volatile compds. were isolated by extraction, analyzed, and identified by means of GC and GC/MS. The major volatile compds. generated by thermal degradation of these amino acids were diallyl sulfides (mono-, di-, tri-, and tetrasulfide) and allyl alc. Other important degradation products (arising especially at temps. higher than 140 °C) were sulfur-containing cyclic compds., namely 2,5-dimethyl-1,4-dithianes, 2-methyl-1,4-dithiepane, and dimethyl-1,2,5-trithiepanes. It was found that the typical garlic aroma can be formed nonenzymically during the thermal treatment of either alliin or deoxyalliin. The major precursor of this aroma was alliin, while deoxyalliin was much more stable. The contribution of the individual volatiles to the resulting aroma with regard to their sensory properties is discussed.

ACCESSION NUMBER: 1997:590857 HCAPLUS Full-text  
DOCUMENT NUMBER: 127:160809  
ORIGINAL REFERENCE NO.: 127:31167a  
TITLE: Sulfur-Containing Volatiles Arising by Thermal Degradation of Alliin and Deoxyalliin  
AUTHOR(S): Kubec, Roman; Velisek, Jan; Dolezal, Marek; Kubelka, Vladimir  
CORPORATE SOURCE: Department of Food Chemistry and Analysis, Institute of Chemical Technology, Prague, 166 28, Czech Rep.  
SOURCE: Journal of Agricultural and Food Chemistry ( 1997), 45(9), 3580-3585  
CODEN: JAFCAU; ISSN: 0021-8561  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
CC 17-4 (Food and Feed Chemistry)  
IT 107-18-6P, 2-Propen-1-ol, biological studies 557-22-2P, 1,2-Dithiolane 592-88-1P, Diallyl sulfide 638-00-6P, 2,4-Dimethylthiophene 820-30-4P 2050-87-5P, Diallyl trisulfide 2179-57-9P

, Diallyl disulfide 2444-49-7P, Diallyl tetrasulfide  
 6007-26-7P, 2-Methyl-1,3-dithiane 6008-55-5P, 1,4-Dithiepane  
 6572-95-8P, 1,5-Dithiacyclooctane 13679-74-8P,  
 2-Acetyl-5-methylthiophene 17564-27-1P 19721-22-3P,  
 1-Mercapto-3-propanol 26570-99-0P 38348-25-3P,  
 cis-3,5-Diethyl-1,2,4-trithiolane 38348-26-4P,  
 trans-3,5-Diethyl-1,2,4-trithiolane 38348-31-1P,  
 3,3,5,5-Tetramethyl-1,2,4-trithiolane 61685-40-3P 72033-37-5P,  
 2,5-Dimethyl-1,4-dithiane 116664-22-3P 116664-23-4P 116664-  
 29-0P  
 116664-30-3P 132525-18-9P, 2-Methyl-1,4-dithiepane 151602-58-3P  
 151602-59-4P 193625-54-6P, 2-Propene-1-sulfenothioic acid  
 193625-55-7P  
 193625-56-8P 193625-57-9P 193625-58-0P 193625-59-1P 193625-  
 60-4P  
 193625-61-5P 193625-62-6P  
 RL: BOC (Biological occurrence); BSU (Biological study,  
 unclassified); SPN  
 (Synthetic preparation); BIOL (Biological study); OCCU  
 (Occurrence); PREP  
 (Preparation)

(sulfur-containing volatiles arising by thermal degradation of  
 alliin and  
 deoxyalliin)

OS.CITING REF COUNT: 18 THERE ARE 18 CAPLUS RECORDS THAT CITE  
 THIS

RECORD (18 CITINGS)

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE  
 FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

L10 ANSWER 20 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN

TI The essential oil of Allium sativum L., Liliaceae (garlic)

AB The essential oil of Allium sativum L., Liliaceae (Garlic)  
 obtained by steam distillation was analyzed and identified by  
 capillary gas chromatog.-flame ionization detection (GC-FID) and  
 gas chromatog.-mass spectrometry (GC-MS). Over 40 constituents  
 were detected and more than 95% were identified as sulfur  
 containing compds. Diallyl trisulfide, diallyl disulfide, Me  
 allyl trisulfide, Me allyl disulfide and diallyl sulfide were  
 identified as the main constituents. Com., tech. and statistical  
 data are also presented.

ACCESSION NUMBER: 1995:624036 HCAPLUS Full-text

DOCUMENT NUMBER: 123:110510

ORIGINAL REFERENCE NO.: 123:19739a,19742a

TITLE: The essential oil of Allium sativum L.,  
 Liliaceae

(garlic)

AUTHOR(S): Shaath, Nadim A.; Flores, Frederick B.; Osman,  
 Mohamed; Abd-El Aal, Mohamed

CORPORATE SOURCE: Research and Development Laboratory, KATO  
 Worldwide,

Ltd., Mount Vernon, NY, 10553, USA

SOURCE: Developments in Food Science (1995), 37B,  
 2025-37

CODEN: DFSCDX; ISSN: 0167-4501

DOCUMENT TYPE: Journal  
LANGUAGE: English  
CC 17-10 (Food and Feed Chemistry)  
IT 66-25-1, Hexanal 74-93-1, Methanethiol, biological studies 115-07-1,  
1-Propene, biological studies 591-82-2, Isobutyl isothiocyanate  
592-88-1, Diallyl sulfide 624-92-0, Dimethyl disulfide  
870-23-5, Allyl thiol 2050-87-5, Diallyl trisulfide  
2179-57-9, Diallyl disulfide 2179-58-0, Methyl allyl disulfide  
2179-59-1, Allyl propyl disulfide 2444-49-7, Diallyl  
tetrasulfide 3658-80-8, Dimethyl trisulfide 5910-85-0, 2,4-  
Heptadienal  
10152-76-8, Methyl allyl sulfide 23838-18-8, cis-Methyl propenyl  
disulfide 23838-19-9, trans-Methyl propenyl disulfide 34135-85-  
8,  
Methyl allyl trisulfide 62488-53-3 80028-57-5, 2-Vinyl 4H-1,3-  
dithiin  
RL: BAC (Biological activity or effector, except adverse); BOC  
(Biological  
occurrence); BSU (Biological study, unclassified); BIOL (Biological  
study); OCCU (Occurrence)  
(essential oil of allium sativum L.)

L10 ANSWER 21 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN  
TI Antioxidant and radical scavenging effects of aged garlic extract  
and its  
constituents  
AB The antioxidant properties of three garlic preps. and  
organosulfur compds. in garlic have been determined Aged garlic  
extract inhibited the emission of low level chemiluminescence and  
the early formation of thiobarbituric acid-reactive substances  
(TBA-RS) in liver microsomal fraction initiated by t-Bu  
hydroperoxide. However, the water exts. of raw and heat-treated  
garlic enhanced the emission of low level chemiluminescence.  
Among the variety of organosulfur compds., S-allylcysteine (SAC)  
and S-allylmercaptocysteine (SAMC), the major organosulfur compds.  
found in aged garlic extract, showed radical scavenging activity  
in both chemiluminescence and 1,1-diphenyl-2-picrylhydrazyl (DPPH)  
assays, indicating that these compds. may play an important role  
in the antioxidant activity of aged garlic extract

ACCESSION NUMBER: 1995:233868 HCAPLUS Full-text  
DOCUMENT NUMBER: 122:71940  
ORIGINAL REFERENCE NO.: 122:13475a,13478a  
TITLE: Antioxidant and radical scavenging effects of  
aged  
garlic extract and its constituents  
AUTHOR(S): Imai, J.; Ide, N.; Nagae, S.; Moriguchi, T.;  
Matsuura,  
H.; Itakura, Y.  
CORPORATE SOURCE: Inst. OTC Res., Wakunaga Pharmaceutical Co.  
Ltd.,  
Hiroshima, 729-64, Japan  
SOURCE: Planta Medica (1994), 60(5), 417-20  
CODEN: PLMEAA; ISSN: 0032-0943  
PUBLISHER: Thieme  
DOCUMENT TYPE: Journal  
LANGUAGE: English

CC 1-12 (Pharmacology)  
 Section cross-reference(s): 17

IT 70-18-8, Glutathione, biological studies 556-27-4, Alliin  
 592-88-1, Diallyl sulfide 1115-93-1, S-Propyl-L-cysteine  
 1187-84-4, S-Methyl-L-cysteine 2050-87-5, Diallyl trisulfide  
 2179-57-9, Diallyl disulfide 2444-49-7, Diallyl  
 tetrasulfide 19046-22-1 21593-77-1, S-Allyl-L-cysteine 23127-  
 41-5  
 32726-14-0, Methiin 52438-09-2 91212-00-9 91216-95-4 92285-  
 01-3,  
 Ajoene 118686-45-6, Diallyl pentasulfide 125263-70-9, Allixin  
 RL: BAC (Biological activity or effector, except adverse); BSU  
 (Biological  
 study, unclassified); BIOL (Biological study)  
 (antioxidant and radical scavenging effects of aged garlic  
 extract and  
 organosulfur constituents)

OS.CITING REF COUNT: 143 THERE ARE 143 CAPLUS RECORDS THAT CITE  
 THIS

RECORD (144 CITINGS)

L10 ANSWER 22 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN

TI HPLC determination of alliin and its transformation products in  
 garlic and  
 garlic-containing phytomedical preparations

AB An HPLC method is proposed for the determination of alliin in  
 garlic and garlic prepns. The method involves simple  
 homogenization of the sample followed by centrifugation and pre-  
 column derivatization with o-phthaldialdehyde/tert-butylthiol.  
 The chromatog. system with either UV or fluorometric detector  
 consists of a separation on a Spherisorb 5 ODS-2 column and either  
 gradient or isocratic elution with phosphate buffer/methanol  
 mixture as a mobile phase. Similar procedure using the UV  
 detector, the same column and isocratic elution with the same  
 mobile phase is proposed for the simultaneous determination of  
 allicin and its transformation products such as ajoenes,  
 vinylthiols, sulfides and oligosulfides. The methods have been  
 applied with success to garlic and various garlic prepns. such as  
 garlic essential oil, dragees and capsules containing garlic and  
 garlic constituents and have enabled rapid, sensitive and  
 reproducible separation and determination of a full range of  
 chemical constituents in the samples analyzed. The method would  
 become an efficient tool for raw material control and for quality  
 control of food and phytomedical prepns. containing garlic.

ACCESSION NUMBER: 1994:418165 HCAPLUS Full-text

DOCUMENT NUMBER: 121:18165

ORIGINAL REFERENCE NO.: 121:3339a,3342a

TITLE: HPLC determination of alliin and its  
 transformation  
 products in garlic and garlic-containing  
 phytomedical  
 preparations

AUTHOR(S): Velisek, Jan; de Vos, Rudolf H.; Schouten,  
 Antony

CORPORATE SOURCE: Dep. Food Chem. and Anal., Inst. Chem.  
 Technol.,  
 Prague, CZ-166 28/6, Czech Rep.

SOURCE: Potravinarske Vedy (1993), 11(6), 445-53  
CODEN: POVEEC; ISSN: 0862-8653  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
CC 64-2 (Pharmaceutical Analysis)  
Section cross-reference(s): 11  
IT 556-27-4, Alliin 592-88-1, Diallyl sulfide 2050-87-5  
, Diallyl trisulfide 2179-57-9, Diallyl disulfide 2179-58-0,  
Allylmethyl disulfide 2444-49-7, Diallyl tetrasulfide  
10152-76-8, Allylmethyl sulfide 34135-85-8, Allylmethyl  
trisulfide  
90195-83-8, Allylmethyl tetrasulfide 92285-01-3, Ajoene 118023-  
99-7,  
Allylmethyl pentasulfide 138066-86-1 155859-37-3  
RL: ANT (Analyte); ANST (Analytical study)  
(determination of, in garlic and garlic-containing phytomedical  
preps., by HPLC)  
OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS  
RECORD  
(4 CITINGS)

L10 ANSWER 23 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN  
TI Investigations of the volatile constituents of the essential oil of  
Egyptian garlic by GC-MS and GC-FTIR  
AB Chromatog. investigations of an essential oil steam-distilled from  
Egyptian garlic resulted in the identification of 8 major and 26  
minor components. Diallyl trisulfide at 29.7%, (uncorrected for  
internal standard and pyrolysis-induced S8 contents) predominated.  
ACCESSION NUMBER: 1992:489146 HCAPLUS Full-text  
DOCUMENT NUMBER: 117:89146  
ORIGINAL REFERENCE NO.: 117:15547a,15550a  
TITLE: Investigations of the volatile constituents of  
the  
essential oil of Egyptian garlic by GC-MS and  
GC-FTIR  
AUTHOR(S): Jirovetz, Leopold; Jaeger, Walter; Koch, H. P.;  
Remberg, Gerd  
CORPORATE SOURCE: Inst. Pharm. Chem., Univ. Vienna, Vienna, A-  
1090,  
Austria  
SOURCE: Zeitschrift fuer Lebensmittel-Untersuchung und  
-Forschung (1992), 194(4), 363-5  
CODEN: ZLUFAR; ISSN: 0044-3026  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
CC 17-14 (Food and Feed Chemistry)  
Section cross-reference(s): 11, 63  
IT 57-10-3, Hexadecanoic acid, biological studies 60-33-3,  
9,12-Octadecadienoic acid (Z,Z)-, biological studies 111-47-7,  
Dipropyl  
sulfide 112-92-5, Octadecanol 529-20-4, 2-Methylbenzaldehyde  
544-63-8, Myristic acid, biological studies 592-88-1, Diallyl  
sulfide 629-76-5, Pentadecanol 638-02-8, 2,5-Dimethylthiophene  
1002-84-2, Pentadecanoic acid 1551-31-1,  
Tetrahydro-2,5-dimethylthiophene 2050-87-5, Diallyl trisulfide  
2179-57-9, Diallyl disulfide 2179-59-1, Propylallyl disulfide  
2444-49-7, Diallyl tetrasulfide 3658-80-8, Dimethyl trisulfide

5905-47-5, Methyl-1-propenyl disulfide 10152-76-8, Methylallyl  
sulfide  
17619-36-2, Methylpropyl trisulfide 33368-80-8 33368-83-1  
33922-73-5  
34135-85-8, Methylallyl trisulfide 36653-82-4, 1-Hexadecanol  
52687-98-6, Dipropyl tetrasulfide 54644-28-9,  
3,5-Diethyl-1,2,4-trithiolane 62488-53-3 76940-91-5,  
Pentadecanone  
80028-57-5 90195-83-8, Methylallyl tetrasulfide 115868-72-9,  
Di-1-propenyl trisulfide 115868-73-0 142942-86-7 142943-16-6,  
Heptadecanone  
RL: BIOL (Biological study)

(of garlic essential oil, from Egyptian cloves)

OS.CITING REF COUNT: 10 THERE ARE 10 CAPLUS RECORDS THAT CITE  
THIS

RECORD (10 CITINGS)

L10 ANSWER 25 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN  
TI Identification and HPLC quantitation of the sulfides and  
dialk(en)yl

thiosulfinates in commercial garlic products

AB The content of dialk(en)yl thiosulfinates, including allicin, and  
their degradation products was determined by HPLC, using the resp.  
determined extinction coeffs., for a number of com. available  
garlic products. Quantitation was achieved for the  
thiosulfinates; diallyl, Me allyl, and di-Me mono-, di-, tri-,  
tetra-, penta-, and hexasulfides; the vinylidithiins; and (E)- and  
(Z)-ajoene. The thiosulfinates were released only from garlic  
cloves and garlic powder products. The vinylidithiins and ajoenes  
were found only in products containing garlic macerated in  
vegetable oil. The diallyl, Me allyl, and di-Me sulfide series  
were the exclusive constituents found in products containing the  
oil of steam-distilled garlic. Typical steam-distilled garlic oil  
products contained about the same of total sulfur compds. as total  
thiosulfinates released from freshly homogenized garlic cloves;  
however, oil-macerated products contained only 20% of that amount,  
while garlic powder products varied from 0 to 100%. Products  
containing garlic powder suspended in a gel or garlic aged in  
aqueous alc. did not contain detectable amts. of these non-ionic  
sulfur compds. A comparison of several brands of each type of  
garlic product revealed a large range in content (4-fold for oil-  
macerates and 33-fold for steam-distilled garlic oils), indicating  
the importance of anal. before garlic products are used for clin.  
investigations or com. distribution.

ACCESSION NUMBER: 1991:663558 HCAPLUS Full-text

DOCUMENT NUMBER: 115:263558

ORIGINAL REFERENCE NO.: 115:44656h,44657a

TITLE: Identification and HPLC quantitation of the  
sulfides

and dialk(en)yl thiosulfinates in commercial  
garlic  
products

AUTHOR(S): Lawson, Larry D.; Wang, Zhen Yu J.; Hughes,  
Bronwyn G.

CORPORATE SOURCE: Murdock Healthcare, Springville, UT, 84663, USA

SOURCE: Planta Medica (1991), 57(4), 363-70

CODEN: PLMEAA; ISSN: 0032-0943

DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 CC 64-2 (Pharmaceutical Analysis)  
 Section cross-reference(s): 17  
 IT 75-18-3, Dimethyl monosulfide 592-88-1, Diallyl monosulfide  
 624-92-0, Dimethyl disulfide 2050-87-5, Diallyl trisulfide  
 2179-57-9, Diallyl disulfide 2179-58-0, Methyl allyl disulfide  
 2444-49-7, Diallyl tetrasulfide 3658-80-8, Dimethyl trisulfide  
 5756-24-1, Dimethyl tetrasulfide 7330-31-6, Dimethyl pentasulfide  
 10152-76-8 22015-54-9 34135-85-8, Methyl allyl trisulfide  
 80028-57-5, 2-Vinyl-4H-1,3-dithiin 90195-83-8 92284-99-6  
 92285-00-2  
 118023-99-7 118686-45-6 137415-12-4 137443-18-6 138066-86-1  
 RL: ANT (Analyte); ANST (Analytical study)  
 (determination of, in garlic products by HPLC)  
 OS.CITING REF COUNT: 116 THERE ARE 116 CAPLUS RECORDS THAT CITE  
 THIS  
 RECORD (116 CITINGS)

L10 ANSWER 27 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN  
 TI Chemical constituents of garlic oil in Yunnan  
 AB The oil from *Allium sativum* cultivated in Qujing, Yunnan, China  
 was investigated. Twenty compds. were identified, 5 of them never  
 reported in garlic oil, namely: 6-methyl-1-thia-2,4-  
 chyclohexadiene, 5-methyl-1,2-dithia-3-cyclopentene, 4-methyl-1,2-  
 dithiacyclopentene, 4-vinyl-1,2,3-trithia-5-cyclohexene, and allyl  
 Me pentasulfide. The main components are 3-vinyl-1,2-dithia-5-  
 cyclohexene and 3-vinyl-1,2-dithia-4-cyclohexene.  
 ACCESSION NUMBER: 1989:22443 HCAPLUS Full-text  
 DOCUMENT NUMBER: 110:22443  
 ORIGINAL REFERENCE NO.: 110:3789a,3792a  
 TITLE: Chemical constituents of garlic oil in Yunnan  
 AUTHOR(S): Ding, Zhihui; Ding, Jingkai; Yang, Chongren;  
 Saruwatari, Yuichiro  
 CORPORATE SOURCE: Kunming Inst. Bot., Acad. Sin., Kunming, Peop.  
 Rep.  
 China  
 SOURCE: Yunnan Zhiwu Yanjiu (1988), 10(2), 223-6  
 CODEN: YCWCDP; ISSN: 0253-2700  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Chinese  
 CC 17-6 (Food and Feed Chemistry)  
 IT 288-26-6, 3H-1,2-Dithiole 592-88-1, Diallyl sulfide  
 624-92-0, Methyl disulfide 2050-87-5, Diallyl trisulfide  
 2179-57-9, Diallyl disulfide 2179-58-0, Allyl methyl disulfide  
 2179-59-1, Allyl propyl disulfide 2444-49-7, Diallyl  
 tetrasulfide 3658-80-8, Methyl trisulfide 10152-76-8, Allyl  
 methyl  
 sulfide 15165-13-6, 6-Methyl-1-thia-2,4-cyclohexadiene 33922-  
 73-5,  
 Allyl propyl trisulfide 34135-85-8, Allyl methyl trisulfide  
 62488-52-2, 3-Vinyl-1,2-dithia-4-cyclohexene 62488-53-3,  
 3-Vinyl-1,2-dithia-5-cyclohexene 90195-83-8 118023-96-4,  
 5-Methyl-1,2-dithia-3-cyclopentene 118023-97-5,  
 4-Methyl-1,2-dithia-3-cyclopentene 118023-98-6,  
 4-Vinyl-1,2,3-trithia-5-cyclohexene 118023-99-7  
 RL: BIOL (Biological study)



(of garlic oil)  
OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS  
RECORD  
(1 CITINGS)

L10 ANSWER 28 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN  
TI Lipoxxygenase inhibitors from the essential oil of garlic.  
Markovnikov

addition of the allyldithio radical to olefins  
AB Brief pyrolysis of diallyl disulfide (I) at 150 ° affords  
(CH<sub>2</sub>:CHCH<sub>2</sub>)<sub>2</sub>Sn (n = 1, 3, 4), 3-vinyl-4H-[1,2]-dithiin, 2-vinyl-  
4H-[1,3]-dithiin, 6-methyl-4,5,8,9-tetrathiadodeca-1,11-diene, a  
mixture of 2- and 3-(2,3-dithia-5-hexenyl)-3,4-dihydro-2H-  
thiopyran, and 4,5,9,10-tetrathiatrideca-1,12-diene (minor).  
Further heating resulted in loss or gain of S, disproportionation,  
and cyclization. Many of these products were detected in com.  
samples of the essential oil of garlic. They are postulated to  
account for the antioxidant and lipoxxygenase inhibitory activity  
of this oil. A general mechanism is proposed for formation of  
these products based on C-S homolysis of I and reversible terminal  
and internal addition of the allyldithio radical to I. Intramol.  
H atom abstraction-fragmentation of the intermediate formed by  
internal (Markovnikov) addition of the allyldithio radical is  
favored, affording thioacrolein and the 1-(allyldithio)-2-  
propylthio radical.

ACCESSION NUMBER: 1988:610780 HCAPLUS Full-text  
DOCUMENT NUMBER: 109:210780  
ORIGINAL REFERENCE NO.: 109:34859a,34862a  
TITLE: Lipoxxygenase inhibitors from the essential oil  
of

garlic. Markovnikov addition of the  
allyldithio  
radical to olefins

AUTHOR(S): Block, Eric; Iyer, Rajeshwari; Grisoni, Serge;  
Saha,

Chantu; Belman, Sidney; Lossing, Fred P.  
CORPORATE SOURCE: Dep. Chem., State Univ. New York, Albany, NY,  
12222,

USA  
SOURCE: Journal of the American Chemical Society (1988  
, 110(23), 7813-27  
CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 109:210780

CC 26-9 (Biomolecules and Their Synthetic Analogs)

Section cross-reference(s): 1, 11, 28

IT 592--88-1, Diallyl sulfide 820-30-4 2050--87-5  
116664-22-3 116664-24-5 116664-25-6 116664-26-7 116664-28-9  
116664-35-8 116669-30-8

RL: RCT (Reactant); RACT (Reactant or reagent)

(diallyl disulfide pyrolysis product, lipoxxygenase inhibitory  
activity  
of)

IT 2444--49-7P 62488-53-3P 80028-57-5P 116664-23-4P  
116664-27-8P 116664-29-0P 116664-30-3P 116664-31-4P 116664-  
32-5P

116664-33-6P 116664-34-7P 116664-36-9P 116664-37-0P  
 RL: FORM (Formation, nonpreparative); PREP (Preparation)  
 (formation of, in pyrolysis of diallyl disulfide)  
 IT 2179-57-9  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (pyrolysis of, formation of lipoxxygenase inhibitor from)  
 OS.CITING REF COUNT: 58 THERE ARE 58 CAPLUS RECORDS THAT CITE  
 THIS  
 RECORD (60 CITINGS)

L10 ANSWER 29 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN  
 TI Volatile sulfides of the Amazonian garlic bush  
 AB The essential oil from Adenocalymma alliaceum leaves  
 (.apprx.0.04%) was investigated with gas chromatog. (GC) and GC-  
 mass spectroscopy. Of the 13 compds. tentatively identified, 9  
 are likely to be part of a homologous series. The most abundant  
 components were diallyl disulfide and diallyl trisulfide, which  
 comprise 62% of the oil.

ACCESSION NUMBER: 1984:526818 HCAPLUS Full-text  
 DOCUMENT NUMBER: 101:126818  
 ORIGINAL REFERENCE NO.: 101:19255a,19258a  
 TITLE: Volatile sulfides of the Amazonian garlic bush  
 AUTHOR(S): Zoghbi, Maria das Gracas B.; Ramos, Lamar  
 Scott; Maia,  
 Jose Guilherme S.; Da Silva, Mirian L.; Luz,  
 Arnaldo  
 Iran R.  
 CORPORATE SOURCE: Inst. Nac. Pesqui. Amazonia, Cons. Nac.  
 Desenvolvimento Cient. Tecnol., Manaus, 69000,  
 Brazil  
 SOURCE: Journal of Agricultural and Food Chemistry (  
 1984), 32(5), 1009-10  
 CODEN: JAFCAU; ISSN: 0021-8561  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 CC 11-1 (Plant Biochemistry)  
 IT 288-26-6 592-88-1 2050-87-5 2179-57-9  
 2179-58-0 2179-59-1 2444-49-7 33922-73-5 34135-85-8  
 62488-52-2 62488-53-3 90195-83-8  
 RL: BIOL (Biological study)  
 (of Amazonian garlic bush)  
 OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS  
 RECORD  
 (5 CITINGS)

L10 ANSWER 30 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN  
 TI Trisulfides and tetrasulfides from Bunte salts  
 AB The synthesis of trisulfides by reaction of sodium S-  
 alkylthiosulfates with Na<sub>2</sub>S has been improved by adding  
 formaldehyde, which prevents subsequent partial conversion of  
 trisulfide into disulfide by reacting preferentially with the  
 liberated sulfite. Saturation of the reaction mixture with NaCl  
 also suppresses disulfide formation, but to a smaller extent.  
 Bunte salts react with sodium disulfide (or higher polysulfides),  
 giving mixts. of tri- and tetrasulfides. Mixts. of di-, tri-, and  
 tetrasulfides were analyzed by gas liquid chromatography; for

RSnR, where n = 1-4, a plot of log (retention volume) against mol. weight was linear for each of the series, R = Me. Et, and allyl.

ACCESSION NUMBER: 1963:428105 HCAPLUS Full-text  
DOCUMENT NUMBER: 59:28105  
ORIGINAL REFERENCE NO.: 59:5010f-g  
TITLE: Trisulfides and tetrasulfides from Bunte salts  
AUTHOR(S): Milligan, Brian; Saville, B.; Swan, J. M.  
CORPORATE SOURCE: Div. Protein Chem., C.S.I.R.O., Melbourne  
SOURCE: Journal of the Chemical Society (1963)  
3608-14  
CODEN: JC SOA9; ISSN: 0368-1769

DOCUMENT TYPE: Journal  
LANGUAGE: Unavailable  
OTHER SOURCE(S): CASREACT 59:28105

CC 33 (Aliphatic Compounds)  
IT 75-18-3, Methyl sulfide 352-93-2, Ethyl sulfide 592-88-1,  
Allyl sulfide  
(chromatography of)  
IT 110-81-6P, Ethyl disulfide 624-92-0P, Methyl disulfide 1155-00-  
6P,  
Disulfide, bis(o-nitrophenyl) 2050-87-5P, Allyl trisulfide  
2179-57-9P, Allyl disulfide 2444-49-7P, Allyl  
tetrasulfide 3600-24-6P, Ethyl trisulfide 3658-80-8P, Methyl  
trisulfide 5756-24-1P, Methyl tetrasulfide 10342-50-4P,  
Trisulfide,  
bis(o-nitrophenyl) 13730-34-2P, Ethyl tetrasulfide 27484-75-9P,  
Aniline, 2,2'-trithiodi- 39549-07-0P, Trisulfide, bis(p-  
nitrobenzyl)  
RL: PREP (Preparation)  
(preparation and chromatography of)

L11 2 S L9 AND L8  
L12 1 S L11 NOT L1

L12 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2009 ACS on STN  
TI Antioxidant and radical scavenging effects of aged garlic extract  
and its  
constituents

AB The antioxidant properties of three garlic preps. and  
organosulfur compds. in garlic have been determined Aged garlic  
extract inhibited the emission of low level chemiluminescence and  
the early formation of thiobarbituric acid-reactive substances  
(TBA-RS) in liver microsomal fraction initiated by t-Bu  
hydroperoxide. However, the water exts. of raw and heat-treated  
garlic enhanced the emission of low level chemiluminescence.  
Among the variety of organosulfur compds., S-allylcysteine (SAC)  
and S-allylmercaptocysteine (SAMC), the major organosulfur compds.  
found in aged garlic extract, showed radical scavenging activity  
in both chemiluminescence and 1,1-diphenyl-2-picrylhydrazyl (DPPH)  
assays, indicating that these compds. may play an important role  
in the antioxidant activity of aged garlic extract

ACCESSION NUMBER: 1995:233868 HCAPLUS Full-text  
DOCUMENT NUMBER: 122:71940  
ORIGINAL REFERENCE NO.: 122:13475a,13478a  
TITLE: Antioxidant and radical scavenging effects of

aged

AUTHOR(S): garlic extract and its constituents  
Imai, J.; Ide, N.; Nagae, S.; Moriguchi, T.;  
Matsuura,

H.; Itakura, Y.  
CORPORATE SOURCE: Inst. OTC Res., Wakunaga Pharmaceutical Co.  
Ltd.,

Hiroshima, 729-64, Japan  
SOURCE: Planta Medica (1994), 60(5), 417-20  
CODEN: PLMEAA; ISSN: 0032-0943

PUBLISHER: Thieme  
DOCUMENT TYPE: Journal  
LANGUAGE: English

CC 1-12 (Pharmacology)

Section cross-reference(s): 17

IT 70-18-8, Glutathione, biological studies 556-27-4, Alliin  
592-88-1, Diallyl sulfide 1115-93-1, S-Propyl-L-cysteine  
1187-84-4, S-Methyl-L-cysteine 2050-87-5, Diallyl trisulfide  
2179-57-9, Diallyl disulfide 2444-49-7, Diallyl  
tetrasulfide 19046-22-1 21593-77-1, S-Allyl-L-cysteine 23127-

41-5

32726-14-0, Methiin 52438-09-2 91212-00-9 91216-95-4

92285-01-3, Ajoene 118686-45-6, Diallyl pentasulfide 125263-70-

9,

Allixin

RL: BAC (Biological activity or effector, except adverse); BSU  
(Biological

study, unclassified); BIOL (Biological study)

(antioxidant and radical scavenging effects of aged garlic  
extract and  
organosulfur constituents)

L13 1 S L11 AND (L2 AND L3)

L14 0 S L13 NOT L1

L15 4 S L9 AND (L2 AND L3)

L16 3 S L15 NOT L1

L17 1 S L16 AND (PY<2003 OR AY<2003 OR PRY<2003)

L17 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2009 ACS on STN

TI Inhibition of whole blood platelet-aggregation by compounds in  
garlic

clove extracts and commercial garlic products

AB The inhibitory effects of adenosine and a number of quant.  
determined organosulfur compds. derived from garlic cloves or com.  
garlic prepns. on collagen-stimulated in vitro platelet  
aggregation in whole blood determined An estimation of the  
antiaggregatory activity of several brands of the major types of  
com. garlic prepns. was determined from the activities of the  
individual compds. present in each sample. In platelet-rich  
plasma (PRP) most of the antiaggregatory activity of garlic clove  
homogenates was due to adenosine; however, in whole blood neither  
adenosine nor the polar fraction had any effect, and all of the  
antiaggregatory activity was due to allicin and other  
thiosulfinates. Allicin was equally active in whole blood and  
PRP. Among garlic brands, there was a several-fold variation in  
content of the organosulfur compds. and activity for all types of

garlic procedure tested. The best garlic powder tablets were equally as active as clove homogenates, whereas steam-distilled oils were 35% as active and oil-macerates (due to low content) were only 12% as active. A garlic product aged many months in aqueous alc. had no activity. For steam-distilled oils, most of the activity was due to diallyl trisulfide. For the oil-macerates, most of the activity was due to the vinyl dithiins. Ajoene, an exclusive component of the oil-macerates, had highest specific activity of all the compds. tested but, because of its low concns., accounted for only 13% of the activity of diallyl trisulfide and 3% of the activity of allicin in the product.

Compds. which may be active in vivo are discussed.

ACCESSION NUMBER: 1992:166029 HCAPLUS Full-text  
DOCUMENT NUMBER: 116:166029  
ORIGINAL REFERENCE NO.: 116:27839a,27842a  
TITLE: Inhibition of whole blood platelet-aggregation  
by compounds in garlic clove extracts and  
commercial garlic products  
AUTHOR(S): Lawson, Larry D.; Ransom, Dennis K.; Hughes,  
Bronwyn G.  
CORPORATE SOURCE: Madaus Murdock, Inc., Springville, UT, 84663,  
USA  
SOURCE: Thrombosis Research (1992), 65(2), 141-56  
CODEN: THBRAA; ISSN: 0049-3848  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
CC 1-8 (Pharmacology)  
Section cross-reference(s): 63  
IT 58-61-7, Adenosine, biological studies 118-00-3, Guanosine,  
biological studies 539-86-6, Allicin 556-27-4, Alliin  
592-88-1, Diallyl sulfide 624-92-0, Dimethyl disulfide  
2050-87-5, Diallyl trisulfide 2179-57-9, Diallyl  
disulfide 2179-58-0, Methyl allyl disulfide 2444-49-7,  
Diallyl tetrasulfide 3658-80-8, Dimethyl trisulfide 5756-24-1,  
Dimethyl tetrasulfide 10152-76-8, Methyl allyl sulfide 21593-  
77-1,  
S-Allylcysteine 34135-85-8, Methyl allyl trisulfide 62488-53-3  
80028-57-5 90195-83-8, Methyl allyl tetrasulfide 92284-99-6  
92285-00-2 118023-99-7, Methyl allyl pentasulfide 118686-45-6,  
Diallyl  
pentasulfide 140220-12-8  
RL: BIOL (Biological study)

L18 9 S L9 AND L2  
L19 4 S L18 AND (PY<2003 OR AY<2003 OR PRY<2003)  
L20 4 S L19 NOT L1  
L21 0 S L20 NOT L10  
L22 7 S L9 AND L3  
L23 6 S L22 NOT L1  
L24 4 S L23 AND (PY<2003 OR AY<2003 OR PRY<2003)  
L25 0 S L24 NOT L10

L26           E GAUDOUT DAVID?/AU  
               5 S E1-E2  
               SET EXPAND CONTINUOUS  
 L27           1 S L26 AND L9  
 L28           0 S L27 NOT L1  
               E INISAN CLAUDE?/AU  
 L29           14 S E13-E14  
 L30           1 S L29 AND L9  
 L31           0 S L30 NOT L1  
               E DURECHOU SERGE?/AU  
 L32           1 S E26  
 L33           0 S L32 NOT L1  
               E MEGARD DEN?/AU  
 L34           19 S E38-E40  
 L35           1 S L34 AND L9  
 L36           0 S L35 NOT L1

              E DIPROPYL DISULFIDE/CN  
               SET EXPAND CONTINUOUS  
 L1            1 S E3  
               E DIALLYL SULFIDE/CN  
 L2            1 S E15  
               E DIALLYL DISULFIDE/CN  
 L3            1 S E27  
               E DIALLYL TRISULFIDE/CN  
 L4            1 S E39  
               E DIALLYL TETRASULFIDE/CN  
 L5            1 S E51  
               E DIMETHYL THIOSULFINATE/CN  
 L6            1 S E63

FILE 'HCAPLUS' ENTERED AT 07:57:24 ON 09 DEC 2009  
 L7            0 S (L1 AND L2 AND L3 AND L4 AND L5 AND L6)  
 L8            914 S L1  
 L9            46 S L8 AND GARLIC/IT  
 L10           37 S L9 AND (PY<2003 OR AY<2003 OR PRY<2003)  
 L11           9 S L1 AND L6  
 L12           7 S L11 AND (PY<2003 OR AY<2003 OR PRY<2003)

L12 ANSWER 1 OF 7 HCAPLUS COPYRIGHT 2009 ACS on STN  
 TI Apparatus for in-situ generation of stored-product fumigant from  
 garlic  
       bulbs  
 AB Fumigants rich in disulfides and Me thiosulfinate are obtained in-  
       situ from Allium bulbs, for stored-product fumigation.  
 ACCESSION NUMBER: 2000:31803 HCAPLUS Full-text  
 DOCUMENT NUMBER: 132:46277  
 TITLE: Apparatus for in-situ generation of stored-  
 product  
                   fumigant from garlic bulbs  
 INVENTOR(S): Joly, Gilles Gerard Norbert; Auger, Jacques  
 PATENT ASSIGNEE(S): Fr.  
 SOURCE: Fr. Demande, 8 pp.  
           CODEN: FRXXBL

DOCUMENT TYPE: Patent  
LANGUAGE: French  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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---				
FR 2779615	A1	19991217	FR 1997-13541	
19971027 <--				
PRIORITY APPLN. INFO.:			FR 1997-13541	
19971027 <--				
IC ICM A01N065-00				
ICS B02C019-00				
ICI A01N065-00, A01N041-02, A01N031-04				
CC 5-4 (Agrochemical Bioregulators)				
IT 624-92-0, Dimethyl disulfide		629-19-6, Dipropyl disulfide		
2179-57-9, Diallyl disulfide		13882-12-7		
RL: BUU (Biological use, unclassified); BIOL (Biological study);				
USES				
(Uses)				
(of stored-product fumigant, generated in-situ from garlic				
bulbs)				
OS.CITING REF COUNT: 5		THERE ARE 5 CAPLUS RECORDS THAT CITE THIS		
RECORD				
		(5 CITINGS)		

L12 ANSWER 2 OF 7 HCAPLUS COPYRIGHT 2009 ACS on STN

TI Unsensitized photooxidation of sulfur compounds with molecular oxygen in solution

AB Short-wavelength irradiation of aliphatic disulfides, sulfides and BuSH in alcs. or aqueous MeCN containing O2 was studied. The corresponding sulfonic acids are produced in good yields for short alkyl-chain compds., together with smaller amts. of H2SO4 and carboxylic acids. In MeCN, added H2O increased the reaction rate and acid yields. Intermediates such as sulfinic acid and thiosulfonate were detected, and their rates of formation were monitored. The reaction appears to involve thiyl radicals, giving sulfonyl radicals in the presence of O2. A 1st tentative hypothesis concerning the mechanism is advanced.

ACCESSION NUMBER: 1997:112393 HCAPLUS Full-text  
DOCUMENT NUMBER: 126:199244  
ORIGINAL REFERENCE NO.: 126:38519a,38522a  
TITLE: Unsensitized photooxidation of sulfur compounds with molecular oxygen in solution  
AUTHOR(S): Robert-Banchereau, Evelyne; Lacombe, Sylvie; Ollivier, Jean  
CORPORATE SOURCE: Lab. de Physico-Chimie Mol., Univ. of Pau, Pau, 64000, Fr.  
SOURCE: Tetrahedron (1997), 53(6), 2087-2102  
CODEN: TETRAB; ISSN: 0040-4020  
PUBLISHER: Elsevier  
DOCUMENT TYPE: Journal

LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 126:199244  
 CC 23-12 (Aliphatic Compounds)  
 IT 67-68-5, DMSO, reactions 75-18-3, Dimethyl sulfide 109-79-5,  
 1-Butanethiol 110-06-5, Di-tert-butyl disulfide 110-81-6,  
 Diethyl  
 disulfide 544-40-1, Dibutyl sulfide 624-92-0, Dimethyl  
 disulfide  
 629-19-6, Dipropyl disulfide 629-45-8, Dibutyl disulfide  
 822-27-5, Dioctyl disulfide 7782-44-7, Oxygen, reactions  
 13882-12-7, Methyl methanethiosulfinate  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (unsensitized photooxidn. of sulfur compds. with mol. oxygen in  
 solution)  
 OS.CITING REF COUNT: 11 THERE ARE 11 CAPLUS RECORDS THAT CITE  
 THIS  
 RECORD (11 CITINGS)  
 REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE  
 FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE  
 FORMAT  
  
 L12 ANSWER 3 OF 7 HCAPLUS COPYRIGHT 2009 ACS on STN  
 TI Volatile constituents of the solvent extracts of Welsh onions  
 (Allium  
 fistulosum L. variety maichuon) and scallions (A. fistulosum L.  
 variety  
 caespitosum)  
 AB Volatile components were isolated from Welsh onions and scallions  
 by solvent extraction at ambient temps. and analyzed by GC and GC-  
 MS. Over 60 volatile components were identified, including 12  
 novel polysulfides. Me methanethiosulfinate and 10 dialk(en)yl  
 thiosulfonates were found in Welsh onion and scallion exts. These  
 thiosulfonates and thiosulfonates were not previously identified  
 in distilled oils, probably due to their instability to heat.  
 ACCESSION NUMBER: 1992:590554 HCAPLUS Full-text  
 DOCUMENT NUMBER: 117:190554  
 ORIGINAL REFERENCE NO.: 117:32889a,32892a  
 TITLE: Volatile constituents of the solvent extracts  
 of Welsh  
 onions (Allium fistulosum L. variety maichuon)  
 and  
 scallions (A. fistulosum L. variety  
 caespitosum)  
 AUTHOR(S): Kuo, May Chien; Ho, Chi Tang  
 CORPORATE SOURCE: Dep. Food Sci., Rutgers, State Univ. New  
 Jersey, New  
 Brunswick, NJ, 08903, USA  
 SOURCE: Journal of Agricultural and Food Chemistry ( 1992), 40(10), 1906-10  
 CODEN: JAFCAU; ISSN: 0021-8561  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 CC 17-10 (Food and Feed Chemistry)  
 IT 66-25-1, Hexanal 91-20-3, Naphthalene, biological studies 107-  
 03-9,  
 1-Propanethiol 123-54-6, 2,4-Pentanedione, biological studies



505-57-7, 2-Hexenal 593-08-8, 2-Tridecanone 623-36-9,  
 2-Methyl-2-pentenal 624-92-0, Dimethyl disulfide 629-19-6,  
 Dipropyl disulfide 632-15-5, 3,4-Dimethylthiophene 638-00-6,  
 2,4-Dimethylthiophene 925-89-3, 1-Propene-1-thiol 1113-13-9  
 2144-06-1 2179-60-4, Methyl propyl disulfide 2949-92-0 3658-  
 80-8,  
 Dimethyl trisulfide 3777-69-3, 2-Pentylfuran 5756-24-1,  
 Dimethyl  
 tetrasulfide 6028-61-1, Dipropyl trisulfide 6251-26-9,  
 Methanesulphenothioic acid 10547-83-8,  
 3,4-Dimethyl-2,5-dioxo-2,5-dihydrothiophene 13882-12-7, Methyl  
 methanethiosulfinate 17619-36-2, Methyl propyl trisulfide  
 23838-18-8,  
 Methyl cis-1-propenyl disulfide 23838-19-9, Methyl trans-1-  
 propenyl  
 disulfide 23838-20-2, Propyl cis-1-propenyl disulfide 23838-21-  
 3,  
 Propyl trans-1-propenyl disulfide 23838-24-6, Methyl cis-1-  
 propenyl  
 trisulfide 23838-25-7, Methyl trans-1-propenyl trisulfide  
 24387-69-7,  
 Propyl methanethiosulfonate 32157-29-2 33368-79-5 33922-70-2,  
 Propyl  
 1-propenyl sulfide 33922-80-4, Di(1-propenyl) sulfide 34139-13-  
 4  
 37590-81-1 38348-25-3 38348-26-4 42848-06-6 51647-38-2,  
 3-Methyl-1,2,4-trithiolane 52195-40-1 52687-98-6, Dipropyl  
 tetrasulfide 53897-66-8 57877-72-2 87148-08-1, Methyl propyl  
 tetrasulfide 115868-72-9, Di(1-propenyl) trisulfide 126876-28-6  
 126876-30-0 126876-31-1 126876-42-4 131425-49-5 131425-50-8  
 137364-00-2 143193-05-9 143193-06-0 143193-07-1 143193-08-2  
 143193-09-3 143193-10-6 143193-11-7 143193-12-8 143193-13-9  
 RL: BIOL (Biological study)

(of scallions and Welsh onions)

OS.CITING REF COUNT: 12 THERE ARE 12 CAPLUS RECORDS THAT CITE  
 THIS

RECORD (12 CITINGS)

L12 ANSWER 4 OF 7 HCAPLUS COPYRIGHT 2009 ACS on STN

TI Isolation and preparation of thiosulfinic acid S-esters as  
 antiinflammatories

AB R1S(O)SR2 [I; R1, R2 = (un)substituted alkyl, aryl, aralkyl,  
 alicyclyl, heterocyclyl], isolated from onion juice or prepared by  
 chemical methods, are useful for treatment of inflammatory  
 diseases in the broadest sense, e.g., bronchial asthma, rheumatic  
 diseases, allergies, and thrombotic diseases. In a typical  
 chemical preparation PhS(O)Cl in Et2O was added to PhSH in Et2O  
 containing pyridine and the mixture was stirred 10 min to give 68%  
 I (R1 = R2 = Ph). Twelve addnl. I were prepared by this method.  
 cis- And trans-I (R1 = Me, R2 = MeCH:CH) were isolated from onions  
 by homogenization, extraction with a H2O-immiscible solvent, and  
 high pressure liquid chromatog., and the mixture of stereoisomers  
 gave 100% inhibition of 5-lipoxygenase at 5 µM. At 20 mg/kg  
 orally in guinea pigs, the mixture significantly inhibited  
 bronchospasm caused by inhalation of an aerosol of blood platelet-  
 activating factor.

ACCESSION NUMBER: 1989:477635 HCAPLUS Full-text

DOCUMENT NUMBER: 111:77635  
ORIGINAL REFERENCE NO.: 111:13075a,13078a  
TITLE: Isolation and preparation of thiosulfinic acid  
S-esters as antiinflammatories  
INVENTOR(S): Wagner, Hildebert; Dorsch, Walter  
PATENT ASSIGNEE(S): Boehringer Mannheim G.m.b.H., Fed. Rep. Ger.  
SOURCE: Eur. Pat. Appl., 24 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 299424	A2	19890118	EP 1988-111119	
19880712 <--				
EP 299424	A3	19891018		
EP 299424	B1	19931020		
R: ES, GR				
DE 3723248	A1	19890126	DE 1987-3723248	
19870714 <--				
WO 8900422	A2	19890126	WO 1988-EP628	
19880712 <--				
WO 8900422	A3	19890309		
W: AU, DK, FI, HU, JP, KR, SU, US				
RW: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE				
AU 8821262	A	19890213	AU 1988-21262	
19880712 <--				
AU 621058	B2	19920305		
EP 324023	A1	19890719	EP 1988-907055	
19880712 <--				
R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
JP 01503713	T	19891214	JP 1988-506299	
19880712 <--				
HU 51133	A2	19900428	HU 1988-4839	
19880712 <--				
AT 96024	T	19931115	AT 1988-111119	
19880712 <--				
DK 8901137	A	19890308	DK 1989-1137	
19890308 <--				
FI 8901210	A	19890314	FI 1989-1210	
19890314 <--				
US 5321045	A	19940614	US 1989-335964	
19890314 <--				
PRIORITY APPLN. INFO.:			DE 1987-3723248	A
19870714 <--				
			EP 1988-111119	A
19880712 <--				
			WO 1988-EP620	W
19880712 <--				
			WO 1988-EP628	A
19880712 <--				
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT				
OTHER SOURCE(S):		MARPAT 111:77635		
IC ICM A61K031-21				

ICS A61K031-44; A61K031-445; A61K031-535; A61K031-35; C07C161-00  
 CC 25-13 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
 Section cross-reference(s): 1, 11, 23  
 IT 624-92-0, Dimethyl disulfide ~~629-19-6~~, Dipropyl disulfide  
 882-33-7, Diphenyl disulfide 2179-57-9, Diallyl disulfide  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidation of, in preparation of antiinflammatory)  
 IT 539-86-6P 1208-20-4P 1948-52-3P 6481-73-8P ~~13882-12-7P~~  
 26974-26-5P 26974-27-6P 26974-29-8P 26974-30-1P 40249-95-4P  
 63911-24-0P 77414-19-8P 95348-47-3P 97031-22-6P 119052-97-  
 0P  
 119052-98-1P 119052-99-2P 119053-00-8P 121955-51-9P 121955-  
 52-0P  
 121955-53-1P 121955-54-2P 121955-55-3P 121955-56-4P 121955-  
 57-5P  
 121955-58-6P 121955-59-7P  
 RL: BAC (Biological activity or effector, except adverse); BSU  
 (Biological  
 study, unclassified); SPN (Synthetic preparation); THU (Therapeutic  
 use);  
 BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (preparation of, as antiinflammatory)  
 OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS  
 RECORD

(2 CITINGS)

L12 ANSWER 5 OF 7 HCAPLUS COPYRIGHT 2009 ACS on STN  
 TI Carbon-13 nuclear magnetic resonance study of the conformations of  
 disulfides and their oxide derivatives  
 AB The <sup>13</sup>C NMR spectra and substituent effects of several acyclic  
 disulfides and their oxidized derivs. are reported. Oxidation of  
 a disulfide to a thiosulfinate or a thiosulfonate has a  
 deshielding effect on the  $\alpha$ -C atom and a shielding effect on the  
 $\alpha'$ -C atom. The chemical shifts of  $\alpha$ - and  $\alpha'$ -C atoms of sulfinyl  
 sulfones are best correlated with the shifts of the  $\alpha$ - and  $\alpha'$ -C  
 atoms in the corresponding thiosulfinates. On the basis of <sup>13</sup>C  
 NMR shielding trends, conformational preferences of all the  
 oxidized derivs. of disulfides are similar. A modified gauche  
 effect is proposed to account for the differences in chemical  
 shifts of the  $\alpha$ -C atoms in the oxidized derivs. of disulfides.  
 ACCESSION NUMBER: 1982:562201 HCAPLUS Full-text  
 DOCUMENT NUMBER: 97:162201  
 ORIGINAL REFERENCE NO.: 97:27041a,27044a  
 TITLE: Carbon-13 nuclear magnetic resonance study of  
 the  
 conformations of disulfides and their oxide  
 derivatives  
 AUTHOR(S): Freeman, Fillmore; Angeletakis, Christos N.  
 CORPORATE SOURCE: Dep. Chem., Univ. California, Irvine, CA,  
 92717, USA  
 SOURCE: Journal of Organic Chemistry (1982), 47(22),  
 4194-200  
 CODEN: JOCEAH; ISSN: 0022-3263  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 97:162201

CC 22-10 (Physical Organic Chemistry)  
IT 110-06-5 110-81-6 150-60-7 624-92-0 ~~629-19-6~~ 629-45-8  
682-91-7 1113-13-9 1118-40-7 1518-72-5 1948-52-3 2949-92-  
0

4253-89-8 7559-55-9 7559-57-1 10027-69-7 ~~13882-12-7~~  
14128-56-4 16302-98-0 16601-40-4 18542-39-7 31562-40-0  
31562-41-1 37552-63-9 38739-06-9 59917-29-2 72360-72-6  
75142-07-3 76625-86-0 76625-87-1 78186-29-5 78607-80-4  
82360-14-3 82823-24-3 82823-25-4

RL: PRP (Properties)

(conformation of, carbon-13 NMR in relation to)

OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS  
RECORD

(4 CITINGS)

L12 ANSWER 6 OF 7 HCAPLUS COPYRIGHT 2009 ACS on STN

TI Attraction of the leek moth, *Acrolepiopsis assectella*, in an  
olfactometer,

by volatile allelochemical compounds found in the leek, *Allium  
porrum*

AB To find the leek, *Acrolepiopsis assectella* uses olfactory  
stimulants (specific S compds.) from the host plant. The  
attractiveness of the leek odor and of different thiosulfinates  
and disulfides found in this plant were studied and compared in an  
olfactometer during the scotophase. In a clean air current the  
insects orient and remain stationary. The majority of males and  
virgin or mated females move upwind when the air current bears the  
leek odor or the volatile S compds. The sensitivity to the host  
plant odor changes with the age of the insect, with old males and  
young females being most attracted. Once mated, the females  
retain a high sensitivity. When the responsiveness to the leek  
odor is highest (at 1 and 5 days), the thiosulfinates have a  
greater effect than the disulfides in both males and virgin  
females. The P moiety is more active than Me. The labile P  
propanethiosulfinate, very profuse in the leek, seems to have the  
major role.

ACCESSION NUMBER: 1982:66047 HCAPLUS Full-text

DOCUMENT NUMBER: 96:66047

ORIGINAL REFERENCE NO.: 96:10831a,10834a

TITLE: Attraction of the leek moth, *Acrolepiopsis*  
*assectella*,

in an olfactometer, by volatile allelochemical  
compounds found in the leek, *Allium porrum*

AUTHOR(S): Lecomte, C.; Thibout, E.

CORPORATE SOURCE: Unite Enseign. Rech. Sci., Univ. Francois  
Rabelais,

Tours, 37200, Fr.

SOURCE: Entomologia Experimentalis et Applicata (1981  
, 30(3), 293-300

CODEN: ETEAAT; ISSN: 0013-8703

DOCUMENT TYPE: Journal

LANGUAGE: French

CC 12-6 (Nonmammalian Biochemistry)

IT 624-92-0 ~~629-19-6~~ 1948-52-3 2179-57-9 ~~13882-12-7~~

RL: BIOL (Biological study)

(of leek, as attractant for leek moth)

OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS

RECORD

(5 CITINGS)

L12 ANSWER 7 OF 7 HCAPLUS COPYRIGHT 2009 ACS on STN

TI Laboratory evaluation of sulfur-bearing chemicals as attractants  
for

larvae of the onion fly, *Delia antiqua* (Meigen) (Diptera:  
Anthomyiidae)

AB A laboratory method was developed to evaluate the effectiveness of  
volatile S chems. as attractants for newly hatched larvae of *Delia*  
*antiqua*. The 27 chems. evaluated included mono-, di- and  
trisulfides, mercaptans, thiosulfinates, thiosulfonates,  
thiopropional S-oxide [32157-29-2] and 'onion oil' (a complex  
mixture of volatiles). Larvae were placed in the center of a  
petri dish and chems. were presented either in glass tubes or on  
white absorbent disks 6 mm in diameter. One tube or disk contained  
10,000, 1000, 100, 10, 1 or 0.1 nL of the test chemical and the  
other a similar amount of Et2O. The solvent did not attract the  
larvae and was used to dispense 0.1-100 nL amts. of the test  
chems. Most of the chems. tested were unattractive at 0.1 nL and  
repellent at 10,000 nL. At the intermediate amts., all attracted  
≥ 40% of the larvae and 13 attracted > 80%. Onion oil at 1 nL and  
Me trisulfide [3658-80-8] at 10 nL elicited the greatest response  
(95%); these chems. in the field can attract newly hatched larvae  
away from onion seedlings.

ACCESSION NUMBER: 1979:518597 HCAPLUS Full-text

DOCUMENT NUMBER: 91:118597

ORIGINAL REFERENCE NO.: 91:19085a,19088a

TITLE: Laboratory evaluation of sulfur-bearing  
chemicals as

attractants for larvae of the onion fly, *Delia*  
*antiqua*  
(Meigen) (Diptera: Anthomyiidae)

AUTHOR(S): Soni, S. K.; Finch, S.

CORPORATE SOURCE: Natl. Veg. Res. Stn., Wellesbourne/Warwick,  
CV35 9EF,

UK

SOURCE: Bulletin of Entomological Research (1979),  
69(2), 291-8

CODEN: BERE2; ISSN: 0007-4853

DOCUMENT TYPE: Journal

LANGUAGE: English

CC 5-4 (Agrochemicals)

IT 60-24-2 75-18-3 107-03-9 110-66-7 110-81-6 111-31-9  
111-47-7

352-93-2 592-65-4 592-88-1 624-92-0 625-80-9 628-29-5  
629-19-6 629-45-8 638-46-0 870-23-5 1113-13-9 1948-52-3  
2179-57-9 2179-58-0 2179-60-4 2949-92-0 3658-80-8  
13882-12-7 32157-29-2

RL: BIOL (Biological study)

(as insect attractant, for onion fly)

FILE 'REGISTRY' ENTERED AT 08:00:40 ON 09 DEC 2009  
E GAMMA-GLUTAMYL-S-ALLYLCYSTEINE/CN

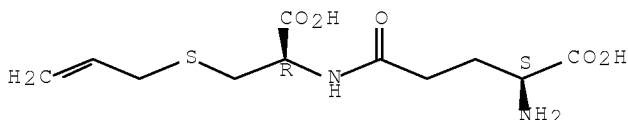
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L13 1 S US 20080214678/PN

FILE 'REGISTRY' ENTERED AT 08:01:49 ON 09 DEC 2009  
L14 1 S 91216-95-4/RN

L14 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2009 ACS on STN  
RN 91216-95-4 REGISTRY  
CN L-Cysteine, L- $\gamma$ -glutamyl-S-2-propen-1-yl- (CA INDEX NAME)  
OTHER CA INDEX NAMES:  
CN Glutamine, N-[2-(allylthio)-1-carboxyethyl]-, L- (7CI)  
CN L-Cysteine, L- $\gamma$ -glutamyl-S-2-propenyl- (9CI)  
CN L-Cysteine, N-L- $\gamma$ -glutamyl-S-2-propenyl-  
FS STEREOSEARCH  
DR 871093-87-7, 126643-53-6  
MF C11 H18 N2 O5 S  
CI COM  
LC STN Files: BEILSTEIN\*, CA, CAPLUS, TOXCENTER, USPATFULL  
(\*File contains numerically searchable property data)  
DT.CA Caplus document type: Conference; Journal; Patent  
RL.P Roles from patents: BIOL (Biological study); PREP (Preparation);  
USES  
(Uses)  
RL.NP Roles from non-patents: ANST (Analytical study); BIOL  
(Biological  
study); FORM (Formation, nonpreparative); OCCU (Occurrence); PREP  
(Preparation); PROC (Process); PRP (Properties); RACT (Reactant  
or  
reagent); USES (Uses); NORL (No role in record)

Absolute stereochemistry.



SET NOTICE 1 DISPLAY  
SET NOTICE LOGIN DISPLAY

FILE 'HCAPLUS' ENTERED AT 08:02:00 ON 09 DEC 2009  
L15 41 S L14  
L16 34 S L15 AND GARLIC/IT  
L17 14 S L16 AND (PY<2003 OR AY<2003 OR PRY<2003)

L17 ANSWER 5 OF 14 HCAPLUS COPYRIGHT 2009 ACS on STN  
TI Changes in contents of  $\gamma$ -glutamyl peptides and fructan during  
growth  
of Allium sativum  
AB  $\gamma$ -Glutamyl peptides, alliin, and fructan were determined by HPLC  
during growth of A. sativum. The contents of  $\gamma$ -glutamyl peptides  
and alliin in garlic bulbs increased markedly during one month  
before the garlic leaves withered. Results are discussed in

relation to the best harvest time from the standpoint of  
pharmacol. quality of garlic.

ACCESSION NUMBER: 1996:171486 HCAPLUS Full-text  
DOCUMENT NUMBER: 124:226799  
ORIGINAL REFERENCE NO.: 124:41897a,41900a  
TITLE: Changes in contents of  $\gamma$ -glutamyl peptides and  
fructan during growth of *Allium sativum*  
AUTHOR(S): Matsuura, Hiromichi; Inagaki, Masanori;  
Maeshige, Katsuhiko; Ide, Nagatoshi; Kajimura, Yoshio;  
Itakura, Yoichi  
CORPORATE SOURCE: Inst. for OTC Research, Wakunaga Pharmaceutical  
Co., Ltd., Hiroshima, 739-11, Japan  
SOURCE: Planta Medica (1996), 62(1), 70-1  
CODEN: PLMEAA; ISSN: 0032-0943  
PUBLISHER: Thieme  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
CC 11-3 (Plant Biochemistry)  
Section cross-reference(s): 63  
IT Garlic  
(  $\gamma$ -glutamyl peptides and alliin and fructan contents of bulbs  
during growth of)  
IT Plant growth and development  
(  $\gamma$ -glutamyl peptides and alliin and fructan contents of  
garlic bulbs during)  
IT 556-27-4, Alliin 9037-90-5, Fructan 91216-95-4 134677-41-1  
RL: BPR (Biological process); BSU (Biological study, unclassified);  
BIOL (Biological study); PROC (Process)  
(of garlic bulbs during growth)  
OS.CITING REF COUNT: 9 THERE ARE 9 CAPLUS RECORDS THAT CITE THIS  
RECORD  
(9 CITINGS)

L17 ANSWER 6 OF 14 HCAPLUS COPYRIGHT 2009 ACS on STN  
TI Antioxidant and radical scavenging effects of aged garlic extract  
and its constituents  
AB The antioxidant properties of three garlic preps. and  
organosulfur compds. in garlic have been determined Aged garlic  
extract inhibited the emission of low level chemiluminescence and  
the early formation of thiobarbituric acid-reactive substances  
(TBA-RS) in liver microsomal fraction initiated by t-Bu  
hydroperoxide. However, the water exts. of raw and heat-treated  
garlic enhanced the emission of low level chemiluminescence.  
Among the variety of organosulfur compds., S-allylcysteine (SAC)  
and S-allylmercaptocysteine (SAMC), the major organosulfur compds.  
found in aged garlic extract, showed radical scavenging activity  
in both chemiluminescence and 1,1-diphenyl-2-picrylhydrazyl (DPPH)  
assays, indicating that these compds. may play an important role  
in the antioxidant activity of aged garlic extract

ACCESSION NUMBER: 1995:233868 HCAPLUS Full-text  
DOCUMENT NUMBER: 122:71940

ORIGINAL REFERENCE NO.: 122:13475a,13478a  
 TITLE: Antioxidant and radical scavenging effects of aged garlic extract and its constituents  
 AUTHOR(S): Imai, J.; Ide, N.; Nagae, S.; Moriguchi, T.; Matsuura, H.; Itakura, Y.  
 CORPORATE SOURCE: Inst. OTC Res., Wakunaga Pharmaceutical Co. Ltd., Hiroshima, 729-64, Japan  
 SOURCE: Planta Medica (1994), 60(5), 417-20  
 CODEN: PLMEAA; ISSN: 0032-0943  
 PUBLISHER: Thieme  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 CC 1-12 (Pharmacology)  
 Section cross-reference(s): 17  
 IT Antioxidants  
 Garlic  
 (antioxidant and radical scavenging effects of aged garlic extract and organosulfur constituents)  
 IT Radicals, biological studies  
 RL: BPR (Biological process); BSU (Biological study, unclassified);  
 BIOL  
 (Biological study); PROC (Process)  
 (antioxidant and radical scavenging effects of aged garlic extract and organosulfur constituents)  
 IT Organic compounds, biological studies  
 RL: BAC (Biological activity or effector, except adverse); BSU  
 (Biological study, unclassified); BIOL (Biological study)  
 (sulfur-containing, antioxidant and radical scavenging effects of aged garlic extract and organosulfur constituents)  
 IT 70-18-8, Glutathione, biological studies 556-27-4, Alliin 592-88-1,  
 Diallyl sulfide 1115-93-1, S-Propyl-L-cysteine 1187-84-4,  
 S-Methyl-L-cysteine 2050-87-5, Diallyl trisulfide 2179-57-9,  
 Diallyl  
 disulfide 2444-49-7, Diallyl tetrasulfide 19046-22-1 21593-77-1,  
 S-Allyl-L-cysteine 23127-41-5 32726-14-0, Methiin 52438-09-2  
 91212-00-9 91216-95-4 92285-01-3, Ajoene 118686-45-6,  
 Diallyl pentasulfide 125263-70-9, Allixin  
 RL: BAC (Biological activity or effector, except adverse); BSU  
 (Biological study, unclassified); BIOL (Biological study)  
 (antioxidant and radical scavenging effects of aged garlic extract and organosulfur constituents)  
 OS.CITING REF COUNT: 143 THERE ARE 143 CAPLUS RECORDS THAT CITE THIS

RECORD (144 CITINGS)

L17 ANSWER 7 OF 14 HCAPLUS COPYRIGHT 2009 ACS on STN  
 TI Reversed-phase high-performance liquid chromatography of S-alk(en)yl-L-cysteine derivatives in Allium sativum including the determination of (+)-S-allyl-L-cysteine sulfoxide,



$\gamma$ -L-glutamyl-S-allyl-L-cysteine and  
 $\gamma$ -L-glutamyl-S-(trans-1-propenyl)-L-cysteine

AB The separation of six S-alk(en)yl-L-cysteine sulfoxides and  $\gamma$ -L-glutamyl-S-alk(en)yl-L-cysteines as genuine constituents of *Allium sativum* is reported. After automated precolumn derivatization with o-phthaldialdehyde-tert-butanethiol the reaction products, S-substituted isoindole derivs., were analyzed by reversed-phase high-performance liquid chromatog. (RP-HPLC) followed by UV detection at 337 and 260 nm or fluorescence detection (excitation wavelength 230 nm, emission wavelength 420 nm). The method described allowed the qual. and quant. determination of the characteristic genuine polar garlic components in a single run. The accuracy and precision of the assay method, including external calibration, were evaluated. To validate the system, the two main  $\gamma$ -glutamyl peptides,  $\gamma$ -L-glutamyl-S-allyl-L-cysteine (I) and  $\gamma$ -L-glutamyl-S-(trans-1-propenyl)-L-cysteine (II), were determined using two different chromatog. procedures: they were determined as isoindole derivs. with UV detection as described and by RP-HPLC with UV detection at 210 nm without previous derivatization. The method can be applied to the standardization of garlic and garlic preps. Several garlic bulb samples were investigated, and the total amount of I, II, and (+)-S-allyl-L-cysteine sulfoxide (alliin) varied by a factor of .apprx.2.5. The relative standard deviations were <3.0% (n = 3). Recovery of all 3 compds. added to the extraction medium was  $\geq$ 98.1%.

ACCESSION NUMBER: 1993:79575 HCAPLUS Full-text

DOCUMENT NUMBER: 118:79575

ORIGINAL REFERENCE NO.: 118:13983a,13986a

TITLE: Reversed-phase high-performance liquid  
chromatography

of S-alk(en)yl-L-cysteine derivatives in *Allium sativum* including the determination of  
(+)-S-allyl-L-cysteine sulfoxide,  
 $\gamma$ -L-glutamyl-S-allyl-L-cysteine and  
 $\gamma$ -L-glutamyl-S-(trans-1-propenyl)-L-cysteine

AUTHOR(S): Muetsch-Eckner, M.; Sticher, O.; Meier, B.  
CORPORATE SOURCE: Dep. Pharm, Swiss Fed. Inst. Technol. (ETH)  
Zurich,

Zurich, CH-8092, Switz.

SOURCE: Journal of Chromatography (1992), 625(2),  
183-90

CODEN: JOCRAM; ISSN: 0021-9673

DOCUMENT TYPE: Journal

LANGUAGE: English

CC 17-1 (Food and Feed Chemistry)

IT Garlic

(alkylcysteine and alkenylcysteine derivs. determination in, by  
reversed-phase  
HPLC)

IT 16718-23-3 19046-22-1 32726-14-0, (+)-S-Methyl-L-cysteine  
sulfoxide

RL: ANT (Analyte); ANST (Analytical study)  
(detection of, in garlic by reversed-phase HPLC)

IT 52-90-4D, L-Cysteine, S-alkyl and S-alkenyl derivs. 17795-26-5  
91216-95-4 134677-41-1

RL: ANT (Analyte); ANST (Analytical study)

(determination of, in garlic by reversed-phase HPLC)  
OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS  
RECORD

(1 CITINGS)

L17 ANSWER 9 OF 14 HCAPLUS COPYRIGHT 2009 ACS on STN

TI  $\gamma$ -Glutamyl peptides from *Allium sativum* bulbs

AB Four  $\gamma$ -glutamyl peptides were isolated from a hydrophilic extract of garlic bulbs.  $\gamma$ -L-Glutamyl-S-(trans-1-propenyl)-L-cysteine has been isolated as a new genuine constituent of *A. sativum*. Detailed NMR data for  $\gamma$ -L-glutamyl-S-allyl-L-cysteine,  $\gamma$ -L-glutamyl-S-(trans-1-propenyl)-L-cysteine, and  $\gamma$ -L-glutamyl-S-allylthio-L-cysteine are reported. The structures of the 4 compds. were established on the basis of their spectral data (IR, fast-atom-bombardment mass spectrometry, and  $^1\text{H}$  and  $^{13}\text{C}$  NMR). Extensive 2-dimensional heteronuclear correlated NMR expts. allowed the assignment of all proton and carbon resonances for all reported compds.

ACCESSION NUMBER: 1992:607371 HCAPLUS Full-text

DOCUMENT NUMBER: 117:207371

ORIGINAL REFERENCE NO.: 117:35673a,35676a

TITLE:  $\gamma$ -Glutamyl peptides from *Allium sativum* bulbs

AUTHOR(S): Muetsch-Eckner, Margot; Meier, Beat; Wright, Anthony

D.; Sticher, Otto

CORPORATE SOURCE: Dep. Pharm., Eidg. Tech. Hochsch., Zurich, CH-8092,

Switz.

SOURCE: Phytochemistry (1992), 31(7), 2389-91

CODEN: PYTCAS; ISSN: 0031-9422

DOCUMENT TYPE: Journal

LANGUAGE: English

CC 6-3 (General Biochemistry)

Section cross-reference(s): 11, 34, 77

IT Molecular structure

(of  $\gamma$ -glutamyl-containing peptides, of garlic bulb)

IT Garlic

( $\gamma$ -glutamyl peptides of bulb of, purification and structural elucidation of)

IT Peptides, biological studies

RL: PREP (Preparation)

( $\gamma$ -glutamyl-containing, of garlic bulb, purification and structure of)

IT 7432-24-8,  $\gamma$ -L-Glutamyl-L-phenylalanine 91216-95-4P

94504-37-7P 134677-41-1P

RL: BIOL (Biological study)

(of garlic bulb, purification and structure of)

L17 ANSWER 10 OF 14 HCAPLUS COPYRIGHT 2009 ACS on STN

TI  $\gamma$ -Glutamyl-S-alkylcysteines in garlic and other *Allium* species: precursors of age-dependent trans-1-propenyl thiosulfinates

AB The  $\gamma$ -glutamyl-S-alkylcysteines of garlic (*Allium sativum*) were analyzed by reversed-phase HPLC. Only 2 major compds. were found,  $\gamma$ -glutamyl-S-trans-1-propenyl-cysteine (I) and  $\gamma$ -glutamyl-S-allylcysteine (II). I and II decreased markedly when fresh-picked

garlic was stored, especially at 4°. Concomitant with the decrease was a 16-fold increase in trans-1-propenyl allyl and allyl trans-1-propenyl thiosulfinates in the homogenate of garlic stored for 10 wk at 4°. Evidence is given to show that I and II are the original sources of the trans-1-propenyl and allyl groups found in these thiosulfinates. The  $\gamma$ -glutamyl-S-alkylcysteine content of the bulbs and seeds of a number of Allium species are tabulated.

ACCESSION NUMBER: 1991:448001 HCAPLUS Full-text  
DOCUMENT NUMBER: 115:48001  
ORIGINAL REFERENCE NO.: 115:8321a,8324a  
TITLE:  $\gamma$ -Glutamyl-S-alkylcysteines in garlic and other Allium species: precursors of age-dependent trans-1-propenyl thiosulfinates  
AUTHOR(S): Lawson, Larry D.; Wang, Zhen Yu J.; Hughes, Bronwyn G.  
CORPORATE SOURCE: Murdock Healthcare, Springville, UT, 84663, USA  
SOURCE: Journal of Natural Products (1991), 54(2), 436-44  
CODEN: JNPRDF; ISSN: 0163-3864  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
CC 17-10 (Food and Feed Chemistry)  
IT 134568-42-6 134595-70-3  
RL: FORM (Formation, nonpreparative)  
(formation of, from glutamylcysteines in garlic storage)  
IT 134677-41-1  
RL: BIOL (Biological study)  
(of garlic and other Allium bulbs and seeds, storage in relation to)  
IT 539-86-6, Allicin 119052-99-2 134568-43-7  
RL: BIOL (Biological study)  
(of garlic in storage)  
IT 19046-22-1P,  $\gamma$ -Glutamyl-S-methylcysteine 91216-95-4P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and presence in garlic and in other Allium seeds)  
OS.CITING REF COUNT: 30 THERE ARE 30 CAPLUS RECORDS THAT CITE THIS

RECORD (31 CITINGS)

L17 ANSWER 11 OF 14 HCAPLUS COPYRIGHT 2009 ACS on STN  
TI Characteristic flavor constituents in water extract of garlic  
AB The flavoring effects of a water extract of garlic (Allium sativum) being added to common soups (Chinese soup and curry soup) were examined by sensory evaluation. When a small amount (0.1 or 0.4% weight/volume) of the extract was added to the soups, it gave characteristic kokumi flavors (continuity, mouthfulness, and thickness), and other tests revealed that this effect was clearly recognized in the umami solution composed of 0.05% mono-Na glutamate and 0.05% di-Na inosinate. To find the compds. that gave rise to the effect, the extract was chromatographed on Duolite C-25. The key compds. were S-containing components, such as alliin, (+)-S-methyl-L-cysteine sulfoxide, and  $\gamma$ -L-glutamyl-S-allyl-L-cysteine.

ACCESSION NUMBER: 1990:196844 HCAPLUS Full-text  
DOCUMENT NUMBER: 112:196844

ORIGINAL REFERENCE NO.: 112:33261a,33264a  
TITLE: Characteristic flavor constituents in water  
extract of  
garlic  
AUTHOR(S): Ueda, Yoichi; Sakaguchi, Makoto; Hirayama,  
Kazuo;  
Miyajima, Ryuichi; Kimizuka, Akimitsu  
CORPORATE SOURCE: Cent. Res. Lab., Ajinomoto Co., Inc., Kawasaki,  
210,  
Japan  
SOURCE: Agricultural and Biological Chemistry (1990  
, 54(1), 163-9  
CODEN: ABCHA6; ISSN: 0002-1369  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
CC 17-10 (Food and Feed Chemistry)  
IT Garlic  
(flavor compds. of)  
IT Soups  
(flavor of, garlic compds. enhancement of)  
IT Flavor  
(of garlic)  
IT Soups  
(curry, flavor of, garlic compds. enhancement of)  
IT Condiments  
(flavor-enhancing, garlic flavor compds. in relation to)  
IT 52-90-4, Cysteine, biological studies 63-68-3, Methionine,  
biological  
studies 70-18-8, Glutathione, biological studies 455-41-4,  
Cycloalliin  
556-27-4, Alliin 32726-14-0, (+)-S-Methyl-L-cysteine sulfoxide  
91216-95-4 126643-54-7  
RL: BIOL (Biological study)  
(of garlic flavor)  
OS.CITING REF COUNT: 15 THERE ARE 15 CAPLUS RECORDS THAT CITE  
THIS  
RECORD (15 CITINGS)

L17 ANSWER 12 OF 14 HCAPLUS COPYRIGHT 2009 ACS on STN  
TI  $\gamma$ -L-Glutamyl-S-allyl-L-cysteine, a new  $\gamma$ -glutamyl peptide in  
garlic  
AB The structure of peptide B, previously isolated (CA 55, 21258i)  
from extract of garlic, was proved to be  $\gamma$ -L-glutamyl-S-allyl-L-  
cysteine (I). Purified I, m. 187-8° (decomposition),  $[\alpha]_{25D} -29.7^\circ$   
(H<sub>2</sub>O), hydrolyzed 3 hrs. with 6N HCl at 100° gave glutamic acid  
(II) and S-methylcysteine (III). However, use of N HCl in place  
of 6N HCl gave S-allylcysteine (IV) with II and a small amount of  
III. IV was converted into III with 6N HCl at 100°. Further  
confirmation of the structure of natural I came by showing its  
m.p., R<sub>f</sub> values, and infrared spectrum identical with those of I  
synthesized by the phthalyl method (King and Kidd, CA 44, 4871b).  
ACCESSION NUMBER: 1963:27570 HCAPLUS Full-text  
DOCUMENT NUMBER: 58:27570  
ORIGINAL REFERENCE NO.: 58:4646h,4647a  
TITLE:  $\gamma$ -L-Glutamyl-S-allyl-L-cysteine, a new  
 $\gamma$ -glutamyl peptide in garlic

AUTHOR(S): Suzuki, Tomoji; Sugii, Michiyasu; Kakimoto, Toshio  
CORPORATE SOURCE: Univ. Kyoto  
SOURCE: Chemical & Pharmaceutical Bulletin (1962), 10, 345-6  
CODEN: CPBTAL; ISSN: 0009-2363

DOCUMENT TYPE: Journal  
LANGUAGE: Unavailable  
CC 44 (Amino Acids, Peptides, and Proteins)  
IT Garlic

( $\gamma$ -L-glutamyl-S-allyl-L-cysteine from)  
IT 91216-95-4, Glutamine, N-[2-(allylthio)-1-carboxyethyl]-, L-  
(from garlic)

L17 ANSWER 13 OF 14 HCAPLUS COPYRIGHT 2009 ACS on STN

TI  $\gamma$ -L-Glutamyl-S-propylcysteine in garlic

AB At least 9  $\gamma$ -glutamyl peptides have been isolated from *Allium sativum* by a Dowex 1 column. These are in part identical with those found in onions (CA 56, 10266b, 10585i), e.g.  $\gamma$ -glutamylphenylalanine,  $\gamma$ -gintamyl-S-methylcysteine, and  $\gamma$ -gintamyl-S- $\beta$ -carboxy- $\beta$ -methylethylcysteinyglycine.  $\gamma$ -Glutamyl-S-allylcysteine and  $\gamma$ -glutamyl-S-propylcysteine were found only in garlic.

ACCESSION NUMBER: 1962:431423 HCAPLUS Full-text

DOCUMENT NUMBER: 57:31423

ORIGINAL REFERENCE NO.: 57:6323a-b

TITLE:  $\gamma$ -L-Glutamyl-S-propylcysteine in garlic

AUTHOR(S): Virtanen, Artturi I.; Hatanaka, Margrit;

Berlin, Marja

CORPORATE SOURCE: Biochem. Forschungsinst, Helsinki

SOURCE: Suomen Kemistilehti B (1962), 35B(No. 3), 52

CODEN: SUKBAJ; ISSN: 0371-4101

DOCUMENT TYPE: Journal

LANGUAGE: German

CC 60 (Plant Biochemistry)

IT Peptides

(glutamic acid-containing, in garlic)

IT Garlic

(glutamyl peptides in)

IT Glutamine, N-[2-(allylthio)-1-carboxyethyl]-  
(in garlic)

IT 91216-95-4

(Derived from data in the 7th Collective Formula Index (1962-1966))

IT 91212-00-9, Glutamine, N-[1-carboxy-2-(propylthio)ethyl]-  
(in garlic)

L17 ANSWER 14 OF 14 HCAPLUS COPYRIGHT 2009 ACS on STN

TI  $\gamma$ -L-Glutamyl-S-allyl-L-cysteine in garlic

AB The elementary composition of this new peptide isolated from *Allium sativum* in crystalline form is C<sub>11</sub>H<sub>18</sub>O<sub>5</sub>N<sub>2</sub>S, m. 156-8.5° (decomposition), [ $\alpha$ ]<sub>D</sub><sup>23</sup> -17.1° (H<sub>2</sub>O). The structure is HO<sub>2</sub>CCH(NH<sub>2</sub>)CH<sub>2</sub>CH<sub>2</sub>CONHCH(CO<sub>2</sub>H)CH<sub>2</sub>SCH<sub>2</sub>CH<sub>2</sub>:CH<sub>2</sub>.

ACCESSION NUMBER: 1962:53681 HCAPLUS Full-text

DOCUMENT NUMBER: 56:53681

ORIGINAL REFERENCE NO.: 56:10266b-c  
TITLE:  $\gamma$ -L-Glutamyl-S-allyl-L-cysteine in garlic  
AUTHOR(S): Virtanen, Artturi I.; Mattila, Inkeri  
CORPORATE SOURCE: Univ. Helenski  
SOURCE: Suomen Kemistilehti B (1961), 34B(No. 3), 44  
CODEN: SUKBAJ; ISSN: 0371-4101  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
CC 38 (Amino Acids, Peptides, and Proteins)  
IT Garlic, N-[2-(allylthio)-1-carboxyethyl]glutamine from  
Glutamine, N-[2-(allylthio)-1-carboxyethyl]-  
RL: PREP (Preparation)  
IT 91216-95-4

E DIPROPYL DISULFIDE/CN  
SET EXPAND CONTINUOUS  
L1 1 S E3  
E E DIMETHYL THIOSULFINATE/CN  
E DIMETHYL THIOSULFINATE/CN  
L2 1 S E27

FILE 'HCAPLUS' ENTERED AT 08:27:55 ON 09 DEC 2009  
L3 914 S L1  
L4 46 S L3 AND GARLIC/IT  
L5 37 S L4 AND (PY<2003 OR AY<2003 OR PRY<2003)

L5 ANSWER 3 OF 37 HCAPLUS COPYRIGHT 2009 ACS on STN  
TI Field evaluation of non-pesticide chemicals as honey bee repellents  
AB Bee poisoning from pesticides is a serious problem worldwide.  
Major concern exists for the safety of honey bees (*Apis mellifera* L.) as valuable pollinators of many horticultural crops. One way of reducing the pesticide hazard to bees is to apply a chemical repellent that will discourage bees from foraging on crops for an interval after a bee hazard pesticide has been applied. During 1990-1998, the authors conducted field tests on blooming apples (*Malus domestica* Borkh.), dandelions (*Taraxacum officinale* G. Weber, in Wiggers), buckwheat (*officinale*) and white Dutch clover (*officinale*) plants to evaluate their repellent effect to foraging honey bees. Evaluations were made by slowly walking through the plots and counting the number of honey bees (30 s/6.7 m/0.91 m swath) except for apples where they were counted by slowly moving around and counting the number of honey bees (30 s/1 tree) at 1 and 4 h. after application. The authors evaluated about 240 non-pesticide chems. Eleven chems. significantly reduced the number of honey bee foragers at 1 h. after application but not at 4 h. In some tests, but not all, 10 chems. significantly reduced the number of honey bee foragers at 1 h. after application but not at 4 h. One chemical significantly reduced the number of honey bee foragers at 1 h. and 4 h. after application. In some tests, but not all, 2 chems. significantly reduced the number of honey bee foragers at 4 h. after application but not at 1 h.

ACCESSION NUMBER: 2001:493021 HCAPLUS Full-text  
DOCUMENT NUMBER: 136:243278  
TITLE: Field evaluation of non-pesticide chemicals as honey

bee repellents  
AUTHOR(S): Mayer, D. F.; Lunden, J. D.; Kovacs, G.;  
Miliczky, E.  
CORPORATE SOURCE: R.  
Department of Entomology, Irrigated Agriculture  
Research & Extension Center, Washington State  
University, Prosser, WA, 99350, USA  
SOURCE: Colloques - Institut National de la Recherche  
Agronomique (2001), 98(Hazards of Pesticides  
to Bees), 159-168  
CODEN: COLIEZ; ISSN: 0293-1915  
PUBLISHER: Institut National de la Recherche Agronomique  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
CC 5-4 (Agrochemical Bioregulators)

L5 ANSWER 6 OF 37 HCAPLUS COPYRIGHT 2009 ACS on STN

TI Cholesterol-lowering effect of garlic extracts and organosulfur  
compounds:

human and animal studies

AB The medicinal use of garlic dates back thousands of years, but  
there was little scientific support of its therapeutic and  
pharmacol. properties until recently. In the past decade, the  
cancer-protective effects of garlic have been well established by  
epidemiol. studies and animal expts. However, the cardiovascular-  
protective properties of garlic are less well understood. In  
particular, despite the reported hypocholesterolemic effect of  
garlic, the mechanism of the effect is unclear. In a recent  
randomized, double-blind, placebo-controlled intervention study,  
we showed that aged garlic extract (AGE) supplementation was  
effective in lowering plasma concentration of total cholesterol by  
7% and LDL cholesterol by 10% in hypercholesterolemic men compared  
with subjects consuming a placebo. Supplementation of AGE in  
animal diets similarly reduced plasma concns. of total cholesterol  
and triacylglycerol by 15 and 30%, resp. In subsequent expts.  
using cultured rat hepatocytes, we found 44-87% inhibition of  
cholesterol synthesis by the water-extractable fraction (WEF),  
methanol-extractable fraction (MEF) and petroleum ether-  
extractable fraction (PEF) of fresh garlic, and Kyolic (liquid  
form of AGE). These observations suggested that hydrophilic and  
hydrophobic compds. of garlic are inhibitory to cholesterol  
synthesis. Because S-allylcysteine (SAC) alone was less potent  
than Kyolic, which contains SAC and other sulfur compds., a  
maximal inhibition appears to require a concerted action of  
multiple compds. of garlic. In a series of expts., we further  
characterized the inhibitory potency of individual water-soluble  
and lipid-soluble compds. of garlic. Among water-soluble compds.,  
SAC, S-ethylcysteine (SEC), and S-propylcysteine (SPC) inhibited  
cholesterol synthesis by 40-60% compared with 20-35% by  $\gamma$ -  
glutamyl-S-allylcysteine (GSAC),  $\gamma$ -glutamyl-S-methylcysteine  
(GSMC) and  $\gamma$ -glutamyl-S-propylcysteine (GSPC). Lipid-soluble  
sulfur compds. (i.e., diallyl sulfide, diallyl disulfide, diallyl  
trisulfide, di-Pr sulfide and di-Pr trisulfide) at low concns.  
(0.05-0.5 mol/L) slightly (10-15%) inhibited cholesterol synthesis  
but became highly cytotoxic at high concns. (1.0-4.0 mol/L). All  
water-soluble compds., except S-allylmercaptocysteine, were not

cytotoxic, judging from the release of cellular lactate dehydrogenase into the culture medium. Taken together, the results of our studies indicate that the cholesterol-lowering effects of garlic extract, such as AGE, stem in part from inhibition of hepatic cholesterol synthesis by water-soluble sulfur compds., especially SAC.

ACCESSION NUMBER: 2001:187183 HCAPLUS Full-text  
DOCUMENT NUMBER: 135:14156  
TITLE: Cholesterol-lowering effect of garlic extracts and organosulfur compounds: human and animal studies  
AUTHOR(S): Yeh, Yu-Yan; Liu, Lijuan  
CORPORATE SOURCE: Department of Nutrition, The Pennsylvania State University, University Park, PA, 16802, USA  
SOURCE: Journal of Nutrition (2001), 131(3S), 989S-993S  
CODEN: JONUAI; ISSN: 0022-3166  
PUBLISHER: American Society for Nutritional Sciences  
DOCUMENT TYPE: Journal  
LANGUAGE: English

L5 ANSWER 9 OF 37 HCAPLUS COPYRIGHT 2009 ACS on STN  
TI Analysis method for allicin in garlic oil  
AB Allicin is changed to two isomers, 144-I(3-vinyl-1,2-dithi-5-ene), 144-II(3-vinyl-1,2-dithi-4-ene) at  $\geq 150^{\circ}\text{C}$  in gas chromatog. Di-Pr disulfide is used as internal standard Allicin is changeable with the passage of time, and for this diallyl disulfide is used as standard The method shows good reproducibility.

ACCESSION NUMBER: 2000:555873 HCAPLUS Full-text  
DOCUMENT NUMBER: 133:119352  
TITLE: Analysis method for allicin in garlic oil  
INVENTOR(S): Kim, Chan-koo  
PATENT ASSIGNEE(S): Cho-Dang Pharm. Co., Ltd., S. Korea  
SOURCE: Repub. Korea, No pp. given  
CODEN: KRXXFC  
DOCUMENT TYPE: Patent  
LANGUAGE: Korean  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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KR 9607789	B1	19960612	KR 1993-1328	
19930201 <--				
PRIORITY APPLN. INFO.:			KR 1993-1328	
19930201 <--				
IC ICM G01N030-00				
CC 17-1 (Food and Feed Chemistry)				
IT Food analysis				
Gas chromatography				
(anal. method for allicin in garlic oil)				
IT Essential oils				
RL: AMX (Analytical matrix); ANST (Analytical study)				
(garlic; anal. method for allicin in garlic oil)				
IT 539-86-6, Allicin				



RL: ANT (Analyte); ANST (Analytical study)  
 (anal. method for allicin in garlic oil)  
 IT 629-19-6, Dipropyl disulfide  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (anal. method for allicin in garlic oil)

L5 ANSWER 10 OF 37 HCAPLUS COPYRIGHT 2009 ACS on STN  
 TI Inhibition of cholesterol biosynthesis by organosulfur compounds  
 derived  
 from garlic

AB The study was undertaken to test the inhibitory potential on  
 cholesterologenesis of organosulfur compds. derived from garlic.  
 The primary rat hepatocytes maintained in Dulbecco's modified  
 Eagle's medium were treated with [2-14C]-acetate as substrate for  
 cholesterol synthesis in the presence or absence of test compds.  
 at 0.05 to 4.0 mmol/L. Eleven water-soluble and six lipid-soluble  
 compds. of garlic were tested. Among water-soluble compds., S-  
 allyl cysteine (SAC), S-Et cysteine (SEC), and S-Pr cysteine (SPC)  
 inhibited [2-14C]acetate incorporation into cholesterol in a  
 concentration-dependent manner, achieving 42 to 55% maximal  
 inhibition.  $\gamma$ -Glutamyl-S-allyl cysteine,  $\gamma$ -glutamyl-S-Me cysteine,  
 and  $\gamma$ -glutamyl-S-Pr cysteine were less potent, exerting only 16 to  
 29% maximal inhibitions. Alliin, S-allyl-N-acetyl cysteine, S-  
 allylsulfonyl alanine, and S-Me cysteine had no effect on  
 cholesterol synthesis. Of the lipid-soluble compds., diallyl  
 disulfide (DADS), diallyl trisulfide (DATS), and di-Pr disulfide  
 (DPDS) depressed cholesterol synthesis by 10 to 25% at low concns.  
 ( $\leq 0.5$  mmol/L), and abolished the synthesis at high concns. ( $\geq 1.0$   
 mmol/L). Diallyl sulfide, di-Pr sulfide, and Me allyl sulfide  
 slightly inhibited [2-14C]acetate incorporation into cholesterol  
 only at high concns. The complete depression of cholesterol  
 synthesis by DADS, DATS, and DPDS was associated with cytotoxicity  
 as indicated by marked increase in cellular LDH release. There  
 was no apparent increase in LDH secretion by water-soluble compds.  
 except S-allyl mercaptocysteine, which also abolished cholesterol  
 synthesis. Judging from maximal inhibition and IC50  
 (concentration required for 50% of maximal inhibition), SAC, SEC,  
 and SPC are equally potent in inhibiting cholesterol synthesis.

ACCESSION NUMBER: 2000:226895 HCAPLUS Full-text  
 DOCUMENT NUMBER: 133:26681  
 TITLE: Inhibition of cholesterol biosynthesis by  
 organosulfur  
 compounds derived from garlic  
 AUTHOR(S): Liu, Lijuan; Yeh, Yu-Yan  
 CORPORATE SOURCE: Graduate Program in Nutrition, The Pennsylvania  
 State  
 University, University Park, PA, 16802, USA  
 SOURCE: Lipids (2000), 35(2), 197-203  
 CODEN: LPDSAP; ISSN: 0024-4201  
 PUBLISHER: AOCS Press  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 CC 1-10 (Pharmacology)  
 IT Liver  
 (hepatocyte; inhibition of hepatocyte cholesterol biosynthesis  
 by

organosulfur compds. derived from garlic in relation to cytotoxicity)

IT Anticholesteremic agents  
Cytotoxicity  
Garlic (*Allium sativum*)  
(inhibition of hepatocyte cholesterol biosynthesis by organosulfur compds. derived from garlic in relation to cytotoxicity)

IT Organic compounds, biological studies  
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(sulfur-containing; inhibition of hepatocyte cholesterol biosynthesis by organosulfur compds. derived from garlic in relation to cytotoxicity)

IT 111-47-7, Di-propyl sulfide 556-27-4, Alliin 592-88-1, Diallyl sulfide  
629-19-6, Di-propyl disulfide 1115-93-1 1187-84-4, S-Methyl cysteine 2050-87-5, Diallyl trisulfide 2179-57-9, Diallyl disulfide  
2281-22-3 2629-59-6, S-Ethyl cysteine 10152-76-8, Methyl allyl sulfide  
19046-22-1,  $\gamma$ -Glutamyl-S-methyl cysteine 21593-77-1, S-Allyl cysteine 23127-41-5 91212-00-9 91216-95-4 154502-45-1  
RL: ADV (Adverse effect, including toxicity); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(inhibition of hepatocyte cholesterol biosynthesis by organosulfur compds. derived from garlic in relation to cytotoxicity)

IT 57-88-5, Cholesterol, biological studies  
RL: BPR (Biological process); BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)  
(inhibition of hepatocyte cholesterol biosynthesis by organosulfur compds. derived from garlic in relation to cytotoxicity)

OS.CITING REF COUNT: 24 THERE ARE 24 CAPLUS RECORDS THAT CITE THIS  
RECORD (24 CITINGS)

REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L5 ANSWER 11 OF 37 HCAPLUS COPYRIGHT 2009 ACS on STN

TI Isolation and purification of  $\gamma$ -glutamyl transpeptidase from garlic and trials of its use for flavor enhancement of *Allium* vegetables

AB A method for isolation and partial purification of  $\gamma$ -glutamyl transpeptidase (GT) from sprouted garlic allowing 18-fold

purification and .apprx.34% recovery of activity was developed. The effect of GT on flavor enhancement in of Allium vegetable preps. was measured as pyruvate production Addition of GT to macerated garlic at pH 8.0 and 20-h incubation in 37°C increased the pyruvate content by 20% vs. control. The raw, dried, and powdered garlic, onion, and leek were incubated with GT. The highest increase of pyruvate content was seen in raw macerated garlic (28.9 and 20.0% in samples incubated with water and Tris-HCl, resp.) and in fresh dried garlic incubated in Tris-HCl buffer (18.3%). The flavor was analyzed by GC and GC-MS. The presence of diallylsulfide, methylallyl disulfide, di-Me trisulfide, diallyldisulfide, methylallyl trisulfide, 3-vinyl-(4H)-1,2-dithiin, diallyl trisulfide, 2-vinyl-(4H)-1,3-dithiin, 2-methylpentanal, di-Pr disulfide, propyl-1-propenyl disulfide, methyl-1-propenyl trisulfide, and propyl-1-propenyl trisulfide was quantified. GT caused no significant organoleptic or chemical changes in the flavor of fresh onion, garlic, and leek.

ACCESSION NUMBER: 2000:215582 HCAPLUS Full-text  
DOCUMENT NUMBER: 132:250250  
TITLE: Isolation and purification of  $\gamma$ -glutamyl  
transpeptidase from garlic and trials of its  
use for  
flavor enhancement of Allium vegetables  
AUTHOR(S): Skapska, Sylwia; Kostrzewa, Ewa; Jendrzeczak,  
Zdzislawa  
CORPORATE SOURCE: Zaklad Technologii Przetworow Owocowych i  
Warzywnych,  
Inst. Biotechnologii Przemyslu Rolno-  
Spozywczego,  
Warsaw, 02-532, Pol.  
SOURCE: Prace Instytutow i Laboratoriow Badawczych  
Przemyslu  
Spozywczego (1999), 54, 86-100  
CODEN: PILPAH; ISSN: 0554-9043  
PUBLISHER: Instytut Biotechnologii Przemyslu Rolno-  
Spozywczego  
DOCUMENT TYPE: Journal  
LANGUAGE: Polish  
CC 17-6 (Food and Feed Chemistry)  
Section cross-reference(s): 7

L5 ANSWER 12 OF 37 HCAPLUS COPYRIGHT 2009 ACS on STN  
TI Apparatus for in-situ generation of stored-product fumigant from  
garlic  
bulbs

AB Fumigants rich in disulfides and Me thiosulfinate are obtained in-  
situ from Allium bulbs, for stored-product fumigation.

ACCESSION NUMBER: 2000:31803 HCAPLUS Full-text  
DOCUMENT NUMBER: 132:46277  
TITLE: Apparatus for in-situ generation of stored-  
product  
fumigant from garlic bulbs  
INVENTOR(S): Joly, Gilles Gerard Norbert; Auger, Jacques  
PATENT ASSIGNEE(S): Fr.  
SOURCE: Fr. Demande, 8 pp.  
CODEN: FRXXBL  
DOCUMENT TYPE: Patent

LANGUAGE: French  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

	PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE -----
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	FR 2779615	A1	19991217	FR 1997-13541	
19971027 <--					
PRIORITY APPLN. INFO.:				FR 1997-13541	
19971027 <--					
IC	ICM A01N065-00				
	ICS B02C019-00				
ICI	A01N065-00, A01N041-02, A01N031-04				
CC	5-4 (Agrochemical Bioregulators)				
IT	Fumigants				
	Garlic (Allium sativum)				
	(stored-product fumigant, generated in-situ from garlic bulbs)				
IT	624-92-0, Dimethyl disulfide		629-19-6, Dipropyl disulfide		
	2179-57-9, Diallyl disulfide		13882-12-7		
	RL: BUU (Biological use, unclassified); BIOL (Biological study);				
USES					
	(Uses)				
	(of stored-product fumigant, generated in-situ from garlic				

L6 143 S L2  
L7 18 S L6 AND GARLIC/IT  
L8 14 S L7 AND (PY<2003 OR AY<2003 OR PRY<2003)